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SOME SIGNIFICANT CONTRIBUTIONS TO THE BASIC SCIENCES MADE IN MICHIGAN*

GROVER C. PENBERTHY, M.D.†
DETROIT, MICHIGAN

The Territorial Medical Society of Michigan was organized at Detroit, January 11, 1820, or one hundred and sixteen years ago. This organization marked the union of the profession in the state and in 1865 the Michigan Medical Society was established by some very illustrious medical men.

Time will not permit a review of the medical activities during the years 1820 to 1865, but these activities are of historical record. Suffice it, that handicapped as was the profession, they were laying a foundation for the future and they contributed liberally to society, both in a civic and professional way.

The foundation sciences of medicine were born, nurtured and developed in Europe while America was still in a transitional stage. These sciences were brought to this new country and in a few decades became the leaven which transformed medical education. It seems fitting at this time to recount the part played by Michigan men in the development of medical education.

Physiology

Two years after the organization of the Territorial Society (1822), Wm. Beaumont, an army surgeon, stationed at Fort Mackinac, now known as Mackinac Island, was brought in contact with a most unusual case. A young Canadian, Alexis St. Martin, was accidentally shot in the abdomen. Beaumont was on the scene within a few minutes, and after a long struggle was able to restore St. Martin to his normal health with the exception that a fistulous opening with a valve-like formation gave entrance to the stomach through the abdominal wall.

Three years after the accident (1825) the idea occurred to Beaumont that some experimental work in gastric digestion might be done. He describes the situation as follows: "He (St. Martin) will drink a quart of water or eat a dish of soup and thereby removing the dressing I frequently find the stomach inverted to the size and about the shape of a half-blown rose, yet he complains of no pain, and it will return itself or is easily reduced by gentle pressure. When he lies on the opposite side I can look directly into the cavity of the stomach and almost see the processes of digestion. I have frequently suspended flesh, raw and cooked, as well as other substances, into the perforation to ascertain the length of time required to digest each, and at one time used a tent of raw beef instead of lint to stop the orifice and found that in less than five hours it was completely digested off as smooth and as even as if it had been cut with a knife."

For a period of years Doctor Beaumont supported St. Martin and utilized him to study the processes of gastric digestion, and although referred to as a backwoods physiologist the story of his work has been told in brief in almost every textbook on physiol-

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†Dr. Penberthy is a graduate of the Medical School, University of Michigan, 1910. He is Surgeon at Harper Hospital, Detroit; Director, General Surgery, Children's Hospital of Michigan; Associate Surgeon, Herman Kiefer Hospital; Consulting Surgeon, Receiving Hospital; Associate Professor of Surgery, Wayne University College of Medicine; Non-resident Lecturer, University of Michigan Medical School.

ogy since his time. He was the first to make researches on the gastric secretions of men, and his observations were published in 1833.

Physiology was first an appanage of anatomy under C. L. Ford and a laboratory was established in 1877. It was first developed on a modern scientific experimental basis at the University of Michigan by Henry Sewall (1855-1936), who came to the Medical School as Professor of Physiology, 1882. The first laboratory of physiology was established at Breslau in 1824 by Purkinje (1787-1869). From that time on the new science developed rapidly in the European countries, but in America for the next fifty years, if we except the classical work of Beaumont, little or nothing was done to further its progress. The subject was taught from the didactic and quiz standpoint, but laboratories and research were unknown.

A beginning was made H. P. Bowditch (1840-1911), a pupil of Karl Ludwig, who introduced experimental physiology at Harvard in the seventies. The modern era, however, began in 1876 when H. Newell Martin, a pupil of Michael Foster of England, became Professor of Physiology at the new Johns Hopkins University. Young, active and stimulating, Martin inspired those with whom he came into contact. Henry Sewall, a biologist, was his first pupil and assistant. Sewall came to Ann Arbor with the enthusiasm and experimental ability of the real scientist. It was the first time students were able to see and carry out laboratory experiments. Sewall's outstanding contribution while at Michigan was the experimental work on the preventive inoculation of rattlesnake venom, the keystone in the arch of modern immunology. The work was undertaken with the hope that it might form a worthy contribution to the theory of prophylaxis. He assumed that if the immunity from the fatal effects of the snakebite could be secured and arrived at by means of repeated inoculation with doses of the poison too small to produce ill effects, there was reason to expect that the same sort of resistance against germ-disease might follow the inoculation of the appropriate ptomaine, provided that it was through the products of their metabolism that bacteria produce their fatal effects. Pigeons were used in this experimental work to determine if an immunity could be established. Over a period of months Sewall was able finally to show that the prophylactic effect of repeated inoculations was persistent and that the pigeons were uninjured by a fatal dose of the poison and thereafter recovered their powers of resistance against the ill effects of inoculation with doses of venom much in excess of the fatal amount. Although the pigeons were very sensitive, he succeeded in making them withstand doses ten times greater than the minimal lethal dose. Thus it was shown that animals could be immunized from the effects of venom and that they yielded an active antitoxin. Following Sewall's findings, Roux and Yersin showed that the poison generated in diphtheria was similar to snake venom. Von Behring and Roux independently immunized horses to the venom of diphtheria and produced diphtheria antitoxin, an agent which both prevents and cures the disease. A plaque at Ann Arbor reads as follows: "Commemorating the pioneer work of Henry Sewall, Professor of Physiology at the University of Michigan from 1882-1889. His work in immunizing animals against snake venom demonstrated the principle of antitoxin production." Doctor Sewall died in Denver, Colorado, July of this year.

W. H. Howell succeeded Sewall at the University of Michigan as Professor of Physiology in 1890. He did not remain long, as he was called to Harvard in 1892 and from there to Johns Hopkins in 1893. He, however, carried the torch of Sewall, since he had had very much the same training. Howell's Text Book of Phvsiology published in 1905 was written after a broad experience in laboratory experimental work and was a significant contribution, being used as a standard textbook in many medical schools. Through the work of these and other men, physiology as a distinct and experimental discipline, was implanted into the medical curriculum.

Warren P. Lombard followed Howell and was Professor of Physiology until 1923, when he retired. Lombard received his original training at Leipzig, another of the illustrious group who studied under Karl Ludwig. In addition to being a good teacher he did pioneer experimental work in changes in body weight which led the way to much of our present knowledge of calorimetry. In the work he utilized and gave the first modern application of Sanctorius (1561-1636) method of determining "insensible perspiration" by careful balance studies under various conditions. It is interesting

to note that much of practical value, in the study of modern calorimetry has been brought out through a further application of this method by Benedict of Boston and more recently by Louis H. Newburgh at the University Hospital, Ann Arbor. Lombard's work on capillary pressure in human skin opened a field which occupies a prominent place in the investigation of vascular diseases at the present time. Many other contributions were made by Lombard in his laboratory research.

Pharmacology

The study of drugs was not begun seriously until the close of the eighties. In 1890 John J. Abel became the first Professor of Pharmacology at the University of Michigan. He received his Bachelor of Philosophy degree at the University of Michigan in 1883, and his medical degree at the University of Strassburg. He was well grounded in chemistry with a particular interest in pharmacology. His outstanding contribution was his work on the adrenals. There was a question as to the part played by the adrenals in raising the blood pressure. This work was published after he left Ann Arbor for the chair in Pharmacology at the Johns Hopkins Medical School in 1893. The seed for this contribution to medical science was, however, planted at Ann Arbor.

A. R. Cushny (1866-1926), who succeeded him, was also trained in pharmacology in Strassburg under Schmiedeberg (1838-1921). He held this chair until 1905, when he accepted a call to London and later to Edinburgh. He was a real pharmacologist, not a chemist, and worked to correlate the chemical constituents of material with their pharmacological action. He was one of the first to classify the alkaloids. One of his outstanding contributions to medicine was the publication of the first real textbook of Pharmacology and Therapeutics or the Action of Drugs, which was published in Ann Arbor in 1899. The laboratory developed by these men may truly be said to mark the beginning of the new science in America.

Charles W. Edmunds, the present incumbent of the chair of Pharmacology at the University, has done much to further the pioneer work of Abel and Cushny, particularly in the study of the narcotic problem.

Anatomy

Anatomy in the United States was given in the form of didactic lectures for many years, illustrated by charts and perhaps by a skeleton. The chair of Anatomy at the University was first filled by Moses Gunn, who later became Professor of Surgery and eventually was called to Rush Medical College. It was in the late eighties, however, that real scientific instruction in gross, topographic and microscopic anatomy began to appear. Today, this country can point with pride to the unexcelled facilities and instruction in anatomy.

J. Playfair McMurrich established a modern anatomical laboratory at the University of Michigan in 1894 and held the chair of Anatomy until 1907, when he was called to the University of Toronto. He was a well trained biologist working in anatomy and his outstanding contribution was on Vertebrate Morphology and Embryology. His textbook, "The Development of the Human Body," was first published in the Anatomical Laboratory at the University of Michigan in 1902. It has been used in a great many medical schools. He was also a collaborator with Sabotta in publishing the Atlas of Human Anatomy. McMurrich was followed by G. L. Streeter, who held the chair until 1914, when he accepted a call to the Carnegie Institute.

G. Carl Huber (1865-1934), who had graduated from the University of Michigan Medical School in 1887, and who in 1914 was Professor of Embryology and Histology, was made Professor of Anatomy, combining the latter with Histology. Huber had worked with Howell in physiology as an assistant and it was while he was in the physiological laboratory that he made his studies on nerve degeneration and regeneration. His work on the development and morphology of the uriniferous tubules is outstanding, as is also his microscopic anatomy of the sympathetic nerves of vertebrates and the degeneration and regeneration of motor and sensory nerve endings. He was a collaborator with Bohm, and Davidoff in publishing a Textbook of Histology in 1904. Prior to his death in 1934 he finished reading the proofs of two volumes on histology and anatomy, recently off the press, in which he was a collaborator, and his contribution represents a life work.

Chemistry

Historically, chemistry came from the medical school. It may also be said that biology and zoology came from the medical school. The first laboratories of chemistry

were established at the University of Michigan 1856. It is of interest to note that the first professors of physiological chemistry were appointed in 1882, R. H. Chittendon at Yale and Victor C. Vaughan at Michigan. In 1887 Vaughan went to the legislature and requested that money be appropriated for a hygienic laboratory. This laboratory was one of the first erected to provide an opportunity for laboratory study in physiological chemistry and bacteriology. It was in this laboratory that the first systematic instruction in bacteriology was given in this country under Frederick G. Novy. The dawn of modern bacteriology came with the classical studies of Pasteur (1822-1895) on fermentation, the first publication appearing in 1857.

Vaughan (1851-1929) received his medical education at the University of Michigan, graduating from medicine in 1878. He was first an instructor in physiological chemistry and later Professor of Hygiene and Physiological Chemistry. It may be of interest to mention that as early as the fall of 1881 in a lecture course on "Sanitary Sciences," given by V. C. Vaughan, among other topics the subject of ferments and disease germs was discussed. Vaughan's outstanding contributions were made in his studies of bacterial toxins; food poisoning; the nucleins; tuberculosis and medico-legal subjects. Vaughan was made Dean of the Medical School in 1891 and held this position until 1921, when he retired. During this period he surrounded himself in the medical school by a group of outstanding teachers. He is often referred to as the father of preventive medicine. We who live today, protected as we are against disease, little appreciate our indebtedness to such men as Vaughan and others.

Moses Gomberg received his Sc.D. degree from the University of Michigan in 1894 and from Heidelberg in 1897. He became an instructor in chemistry at Michigan in 1893, later assistant and junior professor in organic chemistry and professor in 1904. His contributions to organic chemistry have been many and in 1914 was given the Nichols Medal by the Chemical Society. His outstanding contributions as recorded are: his work on the trivalent carbon and free radicals; quino-carbonium salts; tautomerism in triphenyl-methane series; ethylene chlorhydrin. Of late years his contributions have consisted of work on the reactions between the binary system and the aromatic aldehydes, the reducing actions of organic compounds, spirons with four aromatic radicals on the spiro-carbon atoms; the valence variation and atomic structure and halochromic salts from trioxyl methyl thioglycocolic acid.

R. L. Kahn, while working in the laboratory of the Michigan State Board of Health at Lansing in 1925, developed a precipitation test for the diagnosis of syphilis. It has been shown to be equally as sensitive and specific as the Wassermann test. This reaction is unique in several respects. It is the first method that has replaced the Wassermann test in numerous laboratories throughout the world; it is comparatively simple in technic and rapid in its completion, requiring only about forty-five minutes for its performance from the time blood is drawn from the patient. At the conference held by the Health Committee of the League of Nations at Copenhagen in 1928, it was decided that the Kahn reaction, in addition to its specificity, was considerably more sensitive than the average of the different precipitation and Wassermann procedures. The results of the serological conference, similar to that of Copenhagen, held under the auspices of the League of Nations Health Committee, at Montevideo in 1930 gave the same results as those obtained at Copenhagen.

Another outstanding contribution to medical science was made by Edward Clark Davidson (1894-1933), when he first published the results of his laboratory and clinical observations, made in the treatment of burns with tannic acid in 1925. Davidson was graduated in medicine from Johns Hopkins in 1920 and shortly after came to Detroit and was a house officer at the Henry Ford Hospital. It was while he was associated in surgery under R. D. McClure that these studies were made and the first scientific work was done to show the advantages of tannic acid as one of the many important details relating to the care of the burned individual.

The large diffuse burns carried a high mortality but with the introduction of this form of therapy the mortality was lowered and the treatment of the diffuse burn was more or less standardized for the first time. The clinical reports from clinics in various parts of the world also show that their mortality figures have been lowered.

This contribution has not only been a factor in the saving of many lives but it had its effect in stimulating others to perfect methods of technic in the treatment of burns.

Oliver Kamm, Scientific Director of the Parke-Davis Research Laboratories, is known to chemists for his contributions in organic synthetic work and is the author of an extensively used textbook on organic analysis. Synthesis of the well-known anesthetic, butyn, was only one of his medical contributions before being called to Detroit in 1920.

Kamm's separation of posterior pituitary extract into two active principles, the oxytocic and pressor hormones, was an important contribution to endocrinology. Not only did this research feat make the two factors available to the clinician; it was of even greater value in demonstrating for the first time that a single gland could produce multiple hormones, this basic idea stimulating further research, with amazing developments in our knowledge of the anterior pituitary gland.

Kamm has coöperated with Doisy in important studies of estrogenic hormones, and more recently with Marker in synthetic production of theelin, a substance already well known as a female sex hormone but formerly regarded as beyond the reach of synthetic chemistry.

Bacteriology

Frederick G. Novy was graduated from the Medical School of the University of Michigan in 1891. Both before and after graduation he pursued his studies at the Hygienic Institute, Berlin; the Pathological Institute at Prague and the Pasteur Institute at Paris. He was first an assistant in organic chemistry and received his Ph.D.; his thesis was on the chemistry of cocaine. He was later an instructor in hygiene and physiological chemistry and in 1902 was made Professor of Bacteriology and later director of the hygienic laboratory. In 1901 he served on the U. S. Commission to Investigate Bubonic Plague in California. In 1904 he with Vaughan appeared before the Wayne County Medical Society and supported the theory that tuberculosis was caused by the tubercle bacillus. His contributions to chemistry and bacteriology have been many, but outstanding are the following: chemistry of bacteria; the cultivation of anaërobes; a new anaërobic bacillus; etiology of diphtheria, yellow fever, and plague; cultivation of trypanosomes, hematozoa of birds; relapsing fever spirochetes with one carrying his name; filterable virus; anaphylatoxin and anaphylaxis and one of his last contributions, the respiration of bacteria, which work he carried on with M. H. Soule, who succeeded him as Professor of Bacteriology on his retirement in 1935.

Newell S. Ferry, research bacteriologist, also a member of the Parke-Davis research staff, has long been known for his studies of antigens and toxins. In the last few years his demonstration that gonococci and meningococci produce soluble toxins has led to important therapeutic advances. Ferry's most notable contribution is his development of meningococcus antitoxin, an agent which, as shown by Hoyne and others, is a distinct improvement over antimeningococcic serum, and which is materially reducing morbidity and mortality in epidemic cerebrospinal meningitis.

Pathology

Pathology was developed and was far advanced before it became recognized as an entity in this country. The department of pathology was a part of medicine under A. B. Palmer, but upon his death in 1887 an independent chair was created under H. Gibbs and laboratory work was instituted. In 1895 the chair recombined with medicine under George Dock, Professor of Medicine, who encouraged the late Aldred S. Warthin to pursue the study of pathology abroad in the middle nineties. Warthin (1866-1931) received his medical education at the University of Michigan and was graduated in 1891. He served as an assistant in internal medicine and 1892 was made an instructor in pathology and later professor and director of the pathological laboratory, which rank he held until his death May 23, 1931. He had an interesting and forceful personality and as a teacher maintained a high standard, stimulating the student to observe and think for himself. As expressed by Carl V. Weller, now Professor of Pathology, "For Doctor Warthin, pathology illumined the entire field of medicine and his interests were broadly clinical as a result." The titles of his hundreds of published works bespeak his extraordinary energy and industry and the great breadth of his interests. Some of his early contributions were of a clinical nature and he was perhaps best known for his

work on the pathology of syphilis. Warthin's translations and revisions of the tenth and eleventh editions of Ziegler's "General Pathology" and his own "Practical Pathology" and "Autopsy Protocols" have provided useful aids to a long sequence of medical students. In his later years he allowed himself to break away from the concretely practical, to enter the field of the cultural and philosophic aspects of medicine, in which he was more than successful.

Augustus W. Crane was graduated from the medical department of the University of Michigan in 1894. That same year he went to Kalamazoo and entered upon the general practice of medicine. His contributions to the medical literature began in 1895. He is a master of English diction and has contributed liberally in his special subject. In 1897 he installed his first x-ray machine—a twelve inch coil operated by a battery and a mechanical break. The battery he made himself. This was within two years after Wm. Conrad Roentgen (1845-1923) announced his discovery of x-ray.

In 1899 he published in the *Philadelphia Medical Journal* a paper under the title of "Skiascopy of the Respiratory Organs." In 1909 he read a paper before the American Medical Association at Atlantic City on "X-ray Evidence in Gastric Cancer," at which time he made an exhibit of seventy-two gastro-intestinal plates, the first of its kind to be shown in this country or perhaps in the world.

Time will not permit me to discuss many other contributions that have been made, no doubt, to the Basic Sciences by Michigan men and women. The subject covers a fertile field that history will record. Much of the success of the long line of illustrious men in the clinical branches of medicine may have had its origin in the stimulus of the original work done at their own doorsteps, in the so-called foundation sciences. In this paper it has been my pleasure to uncover and present some of the distinguished contributions made to the Basic Sciences in Michigan.

References

1. American Journal of Röentgenology, 3: No. 9, (Sept.) 1916.
2. American Men of Science, Garrison. New York: The Science Press, 1921.
3. Annals of Internal Medicine, 9: No. 7, (Jan.) 1936. Notes on Medical Education and Medical Institutions in Michigan.
4. Burr, C. B.: Medical History of Michigan. Published by Michigan State Medical Society, 1930.
5. Cyclopedia of Medicine, Vol. VII. Philadelphia: F. A. Davis Company, 1933.
6. Davidson, Edward C.: Tannic acid treatment of burns. Surg., Gynec. & Obst., 41:202, 1925.
7. Dutchess, Charles E.: Personal communication.
8. Kahn, R. L.: Serum Diagnosis of Syphilis by Precipitation. Baltimore: Williams & Wilkins Co., 1925.
9. McKean, Richard M.: Personal communication.
10. Novy, Frederick G.: Personal communication.
11. Novy, Frederick G.: Fifty years' progress in medical education. Nu Sigma Nu: Historic and Biographic: 1882-1932.
12. Reasoner, Col. M. A.: Dr. William Beaumont. Military Surg., 78:389-391, (May) 1936.
13. Sewall, Henry: Experiments on preventive inoculation of rattlesnake venom. Jour. Physiol., 8:203, 1887.
14. Stirling, William: Some Apostles of Physiology. London: Waterlow & Sons, Limited, 1902.
15. Weller, Carl V.: Obituary Aldred Scott Warthin. Arch. Path., 12:276-279, (August) 1931.

UNDULANT FEVER

Brucellosis—Melitensis—Malta Fever—Mediterranean Fever

C. EMERSON VREELAND, M.D.†
DETROIT, MICHIGAN

The disease is characterized by febrile attacks which may persist for weeks or months, and occasionally from three to five years. There are many remittances. It is caused by Brucella melitensis, Brucella suis and Brucella abortus. Malta fever is an ancient disease. Hennan and Davy described a disease in the eighteenth century which was probably malta fever. It was frequently confused with typhoid and malaria. Bruce, in 1886, proved that Malta fever had a specific etiology when he found the micrococcus in the spleen. One year later, he grew the organism on agar, and reproduced the disease in monkeys by inoculation. He obtained the organism from the blood in 1891. Wright and Semple made definite diagnosis from blood agglutination tests in 1897. In 1904, the British Malta fever commission discovered and isolated the germ from goat's milk; found that goat's milk would frequently agglutinate the micrococcus, and that the infection left the infected human chiefly through the urine.

The disease centers in Malta and all around the Mediterranean. Many cases have been reported from all over Europe

†Dr. Vreeland is a graduate of the University of Chicago Rush College Medical School. He is Gastroenterologist for Grace Hospital, Detroit.

and Asia. In the United States, true melitensis has been reported from California, Texas and Arizona, while B. Suis and B. Abortus have shown increasing numbers of cases from Iowa, Ohio, New York and Michigan.

Brucellosis is primarily a disease of the lower animals communicable to man by contact or by the ingestion of infective material, but probably never or rarely communicated from man to man. More recently, Evans discovered that the Bang bacillus of bovine infectious abortion is closely related to the melitensis micrococcus of Bruce. In the meantime the abortion disease of milk cows has been found extensively in all the States of the Union, and in all countries. Suitable culture media has demonstrated huge numbers of Brucella organisms in the milk of cattle and goats, as well as in their salivary, urinary, and vaginal excretions. These excretions, harboring Brucella organisms, contaminate barns, watering places, and the soil of barn-yards, lanes and pastures. Workmen handling animals may ingest bacteria directly, or inhale infection through dust, since the bacteria may be viable after 70 or 80 days in darkened soil. Veterinarians, farmers, and slaughter-house workmen, may become infected through the skin, nasal-passages and hand-mouth contact through the handling of cattle, hogs, goats, sheep, horses, rabbits and poultry. Laboratory workers frequently contract the disease, while examining blood for other diseases, and instances are known of laboratory workers being infected from handling human blood. A much clearer conception of the possibility of human infection in the United States from animals can be obtained when it is pointed out that 10 per cent of the milk goats have been found positive to the agglutination test and 13 to 16 per cent of the milk cows have given positive reactions. It is also known that animals and human beings may be re-infected, and that there is no life-time immunity to the disease. Without area-control of herds, the farmer has no assurance, after slaughtering his diseased animals, that the neighbor's herds will not lick noses across the boundary fences, and re-infect his herds again.

By far, the greatest source of human infection comes from the use of unpasteurized or improperly pasteurized milk and cream and dairy products such as ice cream, cheeses, etc. The second most common source of infection comes from direct handling of infected hogs and cattle, alive and slaughtered.

The general public can be given a considerable degree of protection by legally enforced pasteurization of market milk and milk to be used for dairy manufacturers. The pasteurization must be rigidly controlled and maintained at the required standard. The factor of safety is very small since the effective thermal death point of Brucella in milk is very close to the temperature at which cream-line and taste are adversely affected. Anyone familiar with modern commercial competition today knows that superior milk flavor and a deep well demarcated cream-line is more likely to prevail than a higher or more prolonged milk-heating for safety.

May I quote from W. E. Cotton, Superintendent of the Experimental Station, Bureau Animal Industry, U. S. Department of Agriculture, to emphasize the danger of relying on Certified or Grade A milk.

"The tardiness with which the agglutination reactions sometimes appear is a rather serious failing because some infected cattle may become spreaders of large amounts of infection before they can be detected, and the test does not always distinguish between present and past infection. There is grave danger in buying pregnant cattle from infected herds even if they do not react to the blood test because of possible latent infection which has not yet developed to a point that the animal reacts to the blood test."

It is almost impossible for any family to know if the standards set for Certified or Grade A milk are being carried out effectively. Certainly, we can cease buying milk and milk products from the irresponsible back-door and curb-stand dealer.

There is sufficient evidence so far as Brucellosis is concerned to warrant issuing a warning against the consumption of pork and pork-products unless they are thoroughly cooked. Other disease such as trichinosis and tape-worm are conveyed to man by pork, and not necessarily eliminated by meat inspection, so that Brucellosis constitutes only an additional reason for eating thoroughly cooked pork.

The most susceptible age is between six and thirty years, but it may occur at any age. Males seem to predominate in the ratio of about 75 per cent to 25 per cent in

females. The greatest number of cases occur during the summer. The increase begins in April and reaches its maximum during July and August, then gradually declines until February.

Detailed cultural and laboratory differentiation of the B. Melitensis, B. Abortus, and B. Suis have been carefully worked out by Huddleson and others, and cannot receive more than brief mention in this clinical presentation. The organism is pleomorphic, about 0.3 micron diameter. It is described most often as a coccus, but often as a bacillus or coccobacillus. It may be found and cultured from the blood, urine, spleen, liver, lymphatic and salivary glands. There is no proof that flies, mosquitoes, or insects transmit it. The isolation of Brucella from human blood can be accomplished with a high degree of success by using a special medium of beef or veal liver infusion boullion. Further success with this media will be obtained if ærobic conditions, an atmosphere of CO2, a PH of 6.6 and the proper use of bacteriostatic dyes are used.

The chief diagnostic tests for Brucella in man, aside from the clinical findings, are the following.

1. Blood cultures in special media, three to fifteen days after inoculation.

2. Agglutination blood tests (within thirty minutes) (1 to 50 or up to 1-500). An antigen made of an S. strain of B. abortus is satisfactory for detecting agglutinins produced by all three species of Brucella. Plate or tube method.

3. Allergic skin test or intradermal brucellin test. Erythema plus edema [twenty-four hours (1 inch diameter or greater) may last to seventy-two hours] may be accompanied by slight or marked general reaction. Occasional slough of the skin area.

4. Opsono-cytophagic activity of citrated whole blood. This tests, more particularly, the degree of immunity obtained.

Although the classical symptoms of undulant fever have been described by Gentry, Hughes, Hardy, and others, as three clinical types, with two other less distinct types, it seems to me that this may lead to confusion until such time as our diagnostic acumen reaches the point where diagnosis of the severe intermittant and undulatory form and the milder ambulant form are widely recognized. The milder forms are more often treated for sinus infection, neurasthenia, neuritis, arthritis, myocarditis, et cetera. The sever form may frequently simulate typhoid, malaria, tuberculosis, influenza, bronchitis, cholecystitis, endocarditis, and glandular infection.

Even though the symptoms and physical findings are frequently classical to the more experienced clinician, most of the cases appear vague and mixed. Therefore, it may be said that diagnosis by exclusion of other diseases, will eventually lead to the specific blood agglutination test and the allergic skin tests.

All or a part of the following symptoms gives a true picture of the disease. The onset is gradual, and the predominant characteristic is fever, without clearly evident cause, and without stopping the patient's work. After a few days there may be severe pains in the back and limbs, vertigo and fatigue. Slight bronchitis, heart palpitation, abdominal pains with constipation, diarrhea and distention are frequent. Headache becomes intense and almost continuous. Loss of appetite becomes pronounced. More exhaustion, more severe vertigo and slight chills usually cause the patient to cease work at this point. The patient or physician may take the temperature for the first time, and all are surprised to find it at 102 or 103 degrees, with the pulse around 100. The fever is now continuous in character, going a little higher every few days, and lowering one or two degrees in the morning. After several weeks, the fever declines so that the patient begins to be about again. A few days later a relapse occurs and the fever cycle recurs. Drenching sweats occur more often than with the first febrile attack, and there is a peculiar odor to the perspiration, which to my senses is that of a mouse-nest. In brief, the symptoms are those of septicemia. The relapses may continue as long as the original fever, but as a rule, are shorter. As one relapse follows another, the illness may persist for many months. The temperature then becomes undulating and the patient appears thin, anemic and weak. Many patients persist in their activities while they have the fever, and this aggravates the disease. The symptoms are rarely as severe as the temperature would indicate. The gums are spongy and bleed easily. Insomnia and hysterical manifestations are common. Spleenic pain and enlargement is moderate. Superficial

lymph glands are often enlarged and painful. Joints often become swollen and tender, but seldom reddened. The hip, sacroiliac, shoulder, ankle and knee-joints are the most commonly involved. Marked secondary anemia is the rule, with an average reduction of 20 to 40 per cent of red corpuscles and hemoglobin. There is only a slight leukocytosis. The urine seldom contains albumin or granular casts. Slight delirium and mild chills may occur. The blood culture may show brucella anytime during the febrile attacks. The continuous or intermittent fever often leaves the patient prostrated.

When improvement is imminent, the length of the intervals between the febrile attacks gradually increases until recovery takes place. Convalescence has been known to begin within three weeks, but a fair average period is three months.

Mild recurrences of headache, general weakness, vertigo, joint-pains, indigestion and nervousness are likely to take place every few weeks or months during the next three years.

The most common complications are arthritis, glandular enlargement, orchitis, neurasthenia, pneumonia, pleurisy with effusion and cardiac failure.

Some outbreaks of undulant fever have reached a mortality rate of 13 per cent, but the average mortality is between 2 and 4 per cent. A persistent temperature of 104 degrees or above is a bad sign.

Vaccines and serums have had little success in the treatment of the disease. Absolute rest, good nursing, and sponging for temperature is of the very greatest importance. Carbonates, calomel, and phosphates, together with the bile salts laxatives, are best for elimination. Salicylates will control the headaches and muscular pains. Iodex or oil of wintergreen used locally, together with heat application, often relieve tender joints. Todd reports some success with intravenous injection of 22 c.c. of 1 per cent mercurochrome, but the drug is always dangerous in large quantities. Dane and Laffaille report success by intravenous injection of .20 grm. tyrpaflavine, and repeating the injection only once. Neosalvarsan has been used but with conflicting reports. More recently, Huddleson's filtrate for subcutaneous injection, is being tried out rather extensively, but nothing conclusive can be said about the filtrate at this time.

Immunotransfusion of blood. Donors of immune blood selected by opsonocytophagic index determination as applied by Huddleson.

Test: 5 c.c. of blood added to test tube containing .2 c.c. of a 20 per cent solution of sodium citrate in physiologic solution of sodium chloride.

Test must be completed within one hour from drawing blood.

Into a clean glass vial (as used in the Kahn test) are placed 0.2 c.c. of the whole blood and 0.1 c.c. of a Brucella suspension from a forty-eight-hour liver agar slant. After thorough shaking, the vial is placed in an incubator at 37 (degrees) C for thirty minutes. A drop placed on a glass slide with a capillary pipette, and spread as in the usual blood smear. Dry rapidly. Stain with Hastings or Wright solution. Count number of Brucella in each of twenty-five leukocytes. No ingested Brucella indicates no immunity. A count of from twenty-one to forty bacteria shows moderate immunity. A count of more than forty bacteria counted in each cell shows marked immunity.

Quevli, Christen and Nelson report good results for immune blood transfusion (1932).

S. M. Creswell, and Carl E. Wallace (Tacoma, Wash.) report two cases with excellent results (1933).

Five hundred c.c. of whole unaltered blood was used for transfusion. Temperature dropped within a few hours.

Clinical Cases

This clinical report on undulant fever is unusual in that the cases selected for review involve all the members of one family of five, and one member of a family of two, but both families infected from a common source. There may be other families in America with all members suffering from brucellosis and with positive laboratory diagnosis, but I do not know of them.

The family of F. M. G., living in Detroit, purchased a large farm, thirty-one miles from Detroit, in 1923. Purebred dairy cattle were purchased, all tested negative to tuberculosis and Bang's disease. Purebred sheep were imported from Scotland. There are many surrounding farms about this property, populated with dairy herds, the health status of which is unknown. There were a few abortions in this herd of cattle, but much less than average, and the calf barn was always filled with healthy calves.

It was customary for this family to use pasteurized milk in Detroit, except week-ends and through the summer, when the residence was mostly on the farm.

Many odd and frequent forms of ill health began to involve the family in 1929, chiefly among the

children and Mrs. F. M. G. By 1933, there were so many sicknesses among the children, including respiration infections, anemia, night terrors, gastro-intestinal disorders, threats of chorea, ear and sinus infections, that it was impossible for them to be in school more than half the time. This was extremely odd, in view of the fact that the mother and father were University graduates, and had always supplied a liberal diet of green vegetables, citric fruits, milk, butter, eggs, minerals, and cod liver oil, and in addition looked after exercise and fresh air requirements. The home is modern, with automatic regulated oil heat. It was necessary to withdraw the children from school, and substitute the Baltimore-Calvert School courses in the home during 1933 and 1934. A private toutor came to the home daily during 1935.

On March 20, 1934, Mr. F. M. G. was at his office when he was seized with chills, and marked vertigo. Several days preceding, he had felt utterly exhausted and had had headache and backache. After arriving home it was found that he had a temperature of 102 degrees. Fever continued with remissions each morning of one or two degrees. A hacking cough and precordial pain was accompanied by dyspnea and a rapid pulse. Backache and muscular pains accompanied the fever. Electrocardiograms were made and found normal. Blood count showed a secondary anemia, with slight leukocytosis. Nausea and vomiting occurred several times. Constipation and gas distention were of daily occurrence. Loss of appetite and bad breath were common. Another blood test was negative for malaria, and the Widal test was negative for typhoid and paratyphoid. After a second week of fever, and the temperature now over 103 degrees, the farm was finally thought of, and the agglutination test and blood culture for undulant fever was made. The agglutination was positive at a dilution of 1 to 200 and the blood culture successfully grew the brucella organism. The blood Wassermann and Kahn tests were negative.

Mrs. F. M. G. had had numerous symptoms of ill health every year since 1931. Chief among her symptoms were profuse night sweats, abdominal pains and gas, simulating appendix and gall-bladder attacks, fainting spells, vomiting, headache, backache and joint pains. The temperature ranged from 99.2 to 99.8 degrees. Extreme nervousness, bordering on hysteria and insomnia developed in 1934. There were repeated attacks of sinus infection, with numerous nasal treatments for relief. Exhaustion was pronounced, and the weight decreased from 127 pounds to 116 pounds.

Quite naturally, when the husband was found positive to undulant fever, the wife and three children were tested. Mrs. F. M. G.'s blood agglutinated in a dilution of 1 to 50, and the intradermal skin test showed erythema and edema extending over two inches and lasting for over seventy-two hours.

The three children, Bob, eight years; Dick, five years, and Tom, four years, had all been tested and found negative to the Mantoux tuberculosis test. The intradermal Brucella tests were all strongly positive, with erythema and edema measuring 1.5 inches and not disappearing until the fourth day. In addition to the local reactions, the mother and three children all had systemic chills and aching muscles. Dick had a small local area of necrosis at the site of injection.

In order to save time, and to emphasize the symptoms, compications, physical findings and laboratory tests, I have made a condensed chart of each patient.

A very surprising reaction occurred when the three children were vaccinated for smallpox in November, 1934. They all had violent systemic upsets and marked local reactions. Two of the oldest boys were in bed for ten days, and encephalitis developed soon after in the oldest boy, which nearly took his life.

Another surprise came in February, 1935, when each of the boys broke out with chicken-pox. All temperatures went to 103 degrees, and they were extremely sick and in bed for four weeks. Whether vaccinations and general infections superimposed on cases of undulant fever always cause violent upsets and complications, I do not know, but I would say that I would avoid any vaccinations of undulant fever patients hereafter. The five-year-old boy developed night terrors and mild chorea after the chicken-pox attack.

In summarizing the course of undulant fever in this family, I would say that Mrs. F. M. G. was probably first infected in 1929, and that the children began in 1932. There was no chance to develop an immunity because with each new infection, more and more of the infected milk was used to build up the general health, each time increasing the opportunity to re-infect with more brucella.

There has been a remarkable change for the better in the health of this family since use of the farm-milk has been discontinued.

When it was determined that all the farm animals were either show-animals or pets of the family, and handled extensively, a competent veterinarian was employed to make a blood test of all cattle, horses, dogs, cats, and part of the sheep, and all reactors slaughtered. The *chart* shows the results.

CHART I. F. M. G.

Age, forty-six years.

Symptoms.—Fever 101 to 104 degrees. Initial febrile period, ten weeks. Several shorter and milder febrile attacks—99.2 to 100.5 degrees. Weight loss, 26 pounds. Chills. Sweating—profuse. Gastro-intestinal—constipation, gas, tongue coated, slight jaundice. Nervous system—marked insomnia, depression, neuritis, anginal pains. *Severe headache,* exhaustion, irritability. Respiratory—*bronchitis,* cough. Joints—arthritis (knee, ankle, shoulder, sacro-iliacs). Heart and Circulatory—palpitation, tachycardia, low blood pressure. Eyes—smarting of lids, excessive lacrymation (very viscid consistency). General—poor appetite, weakness, prostration, vertigo. Urinary—negative. Reproductive—negative.

Physical Findings.—Bronchitis. Lymph gland enlargement and soreness, cervical, axillary, groin, mediastinal. Arthritis—sacro-iliacs, lumbar, ankles, knees, hip, shoulder. Spleen—marked enlargement. Liver—moderate enlargement.

Laboratory.—Brucella: Blood culture positive. Blood agglutination positive. Skin intradermal, positive. Wassermann and Kahn, negative. Mantoux test, negative. Typhoid, paratyphoid, malaria, negative. Electrocardiograms, negative. X-ray chest, negative. Urine, negative. Blood count: Hb 78 per cent—R. B. C., 3,900,000, W. B. C. 10,200.

CHART II. MRS. F. M. G.

Age, thirty-seven years.

Symptoms.—Fever—99.2 to 99.8 degrees. Not taken in 1932 and 1933, during time of most symptoms. Weight—loss 9 pounds. Chills. Sweating—profuse, intermittently during 1932, 1933, 1934. Gastro-intestinal—severe dysentery summers of 1932, 1933, 1934. Constipation following vomiting several times, gas distention, abdominal pains. Nervous System—*Headaches severe,* marked insomnia, extreme irritability, depression, trembling. Respiratory—bronchitis, severe antrum infections, 1931, 1932, 1933, 1934. Joints—wrist, knee, spine, sacro-iliacs (tender, painful, swollen). Heart and Circulatory—palpitation, tachycardia, extra systole, low blood pres-

sure. Ears—earache, 1934 (no paracentesis). Eyes—smarting, excessive lacrymation. General—poor appetite, vertigo, weakness, prostration, fainting spells. Urinary—frequency at times. Reproductive—negative.

Physical Findings.—Antrum and sinus infections repeatedly. Bronchitis. Arthritis—wrist, knee, sacro-iliacs, spine. Spleen—normal, but not examined prior to 1934. Liver—not enlarged, tender several times during apparent gall-bladder attacks.

Laboratory—Brucella: Blood agglutination. Positive. Skin intradermal, positive. Wassermann and Kahn, negative. Mantoux skin test, negative. Blood count: Hb. 84 per cent. R. B. C., 4,350,000. W. B. C., 7,200. Urine, negative.

CHART III. R. G.

Age, eight years.

Symptoms.—Fever 101 to 102 degrees for six weeks, in 1934; 99 to 101 degrees for twenty weeks, in 1935; 99 to 100.5 degrees for one to three weeks in 1932 and 1933. Weight—loss ten pounds. Failed to make normal gain. Profuse perspiration. Gastro-intestinal—dysentery, 1932, 1933, 1934. Constipation most times, gas, intestinal pains, repeated vomiting attacks. Nervous system—chorea, 1934; encephalitis, 1935 for six months in bed, irrational, severe headaches, photophobia, whispered speech, incoördination of muscles and muscular weakness, uncontrolled crying spells. Respiratory—bronchitis repeatedly, antrum infections. Joints—all joints and muscles (pain and tenderness) neck and back. Heart and Circulatory—palpitation, tachycardia. Eyes—smarting, excessive lacrymation, mild conjunctivitis. Ears—otitis media and paracentesis, 22 times. Antrum infections yearly. General—poor appetite; exhaustion and weakness. Urinary, negative.

Physical Findings.—Bronchitis—severe each winter, 1933, 1934, 1935. Lymph glands—cervical, axillary, tender, swollen and enlarged. Arthritis—practically all joints and muscles involved. Spleen—enlarged. Liver—not palpable.

Laboratory.—Brucella: skin intradermal, positive seventy-two hours. Culture and agglutination not made. Wassermann and Kahn, negative. Mantoux test negative. Typhoid and paratyphoid, negative. X-ray chest—negative except enlarged mediastinal glands. Blood count—Hb. 72 per cent. R. B. C. 3,210,000. W. B. C. 11,300. Urine, negative.

CHART IV. D. G.

Age, five years.

Symptoms.—Fever—100.6 to 101 degrees for three weeks, then intermittent fifteen weeks, 99 to 100 degrees. Weight—loss six pounds. Failed to make normal gain. Chills. Sweating—profuse for three weeks. Gastro-intestinal—dysentery, summer 1933; constipation and gas since. Vomiting with dysentery, abdominal pains.

Nervous system—marked irritability, eye squinting, muscular twitching like mild chorea, night terrors several weeks. Respiratory—bronchitis, 1933, 1934. Head colds. Joints—ankle joints painful and tender, muscular pains. Heart and Circulatory—palpitation. Eyes and Ears—otitis media (paracentesis three times). Smarting eyes. General—weakness, poor appetite, vertigo. Urinary, negative.

Physical Findings.—Bronchitis. Lymph gland enlargement and tenderness, cervical and axillary. Arthritis—ankle joints tender. Spleen—marked enlargement. Liver—moderate enlargement.

Laboratory.—Brucella: Skin intradermal positive, seventy-two hours. Culture and agglutination not made. Mantoux test, negative. X-ray chest, negative. Blood count: Hb. 85 per cent. R. B. C. 4,400,000. W. B. C. 7,800. Urine, negative.

CHART V. T. G.

Age, four years.

Symptoms.—Fever—103 to 104 degrees for three weeks, then undulating, twelve weeks, 99.5 to 101 degrees. Weight—loss in first febrile attack, quickly regained. Sweating—profuse for three weeks. Gastro-intestinal—dysentery summer 1933, gas and abdominal pains. Constipation moderate since. Nervous system—irritable, dreams, and insomnia. Respiratory—bronchitis, head colds. Joints—minor pains in muscles and joints. Heart and circulatory—palpitation. Eyes—smarting, moderate conjunctivitis, lacrymation. Ears—otitis media (paracentesis once). General—weakness, variable appetite. Urinary—negative.

Physical Findings.—Bronchitis. Lymph gland—enlargement and tenderness, marked cervical involvement. Arthritis—slight. Spleen—not enlarged. Liver not enlarged.

Laboratory.—Brucella: Skin intradermal positive seventy-two hours. Systemic reaction. Blood culture and agglutination tests not made. Mantoux test—negative. X-ray chest—negative. Blood count: Hb. 89 per cent. R. B. C. 4,860,000. W. B. C. 7,200. Urine, negative.

CHART VI. A. B.

Age, fifty-seven years.

Symptoms.—Fever 99.4 to 101 degrees—Intermittent. Chills. Sweating—moderate. Gastro-intestinal constipation, dysentery several attacks, hyperacidity, gall-bladder attacks. Nervous system—irritability, marked insomnia, neuritis. Heart and circulatory—palpitation. Respiratory—negative. Joints—severe arthritis—knees and ankles (tender, hot and swollen) shoulder—back. *Note:* The arthritis forced this fifty-seven-year-old farmer to retire. Eyes—smarting of lids. General—weakness, vertigo. Urinary—negative.

Physical findings.—Arthritis—knees, ankles, back (severe). Spleen—normal. Liver—moderate enlargement.

Laboratory.—Brucella: Blood agglutination positive. Skin intradermal positive. Wassermann and Kahn—negative. X-ray—Gastro-intestinal tract normal. Gall-bladder, poor filling. Urine—negative.

CHART VII. AGGLUTINATION TEST—ANIMALS FROM INFECTED FARM

108 Dairy cattle tested.....Reactors No. 18
Percentage 16.6 per cent—infected
10 Sheep (2 per cent of 500 flock)..Reactors none
7 Horses (total on farm).....Reactors none
3 Cats (50 per cent on farm)....Reactors none
1 Dog (total on farm).....Reactors none
Swine—None on farm

Note: Of the eighteen cattle reacting positively, there were thirteen coming from four cow families.

Noble Fauvic family	4
Bright Blonde family	3
Rejanita Wayne family	3
Jane Pride family	3

There were also twenty-seven cattle from four cow families, in which every member escaped infection.

Lady Ormsby family	10
Ambassador Della family	6
Creator Rue family	4
Phroso family	7

This brings up the question of whether certain families of cattle have a natural or acquired immunity to Brucella, and if so, does this apply to human families? Also, are some families more susceptible?

DISEASES OF THE KIDNEY: DIFFERENTIAL DIAGNOSIS

ROBERT E. CUMMING, M.D.†
DETROIT, MICHIGAN

The human kidney is a vital organ significant enough to allow the development of a great surgical specialty in the past 25 years known as Urology. It is well, then, to take stock of our present knowledge with regard to kidney disease in general, and to relegate boldly to oblivion any older ideas now known to be impractical or incorrect. Classifications of kidney disease must take into consideration the fundamental idea that any organ is an integral part of a whole organism; so kidney disease must be studied in its relationship to the entire human anatomy and physiology.

It is not expedient to include, in this presentation, a discussion of nephritis, or of the nephroses. These are so-called medical diseases, and as such have an entirely different meaning from the surgical diseases of the kidneys. True, the urologist must, many times, render an opinion based upon differentiation from other types of renal involvement, and it behooves us to be familiar with the various forms of nephritis and nephroses, and to be able to clarify—in a given instance—the individual kidney lesion. This is particularly true if, as often occurs, remote infection is the prime factor in bringing about renal damage. At present it is conceded that many nephritides are the late result of infection, and, indeed—if one recalls the association of nephritis with scarlet fever—a time-worn illustration of this point is at hand. There is much yet to be learned about all kidney diseases, and the alleged "cure" of nephritis, recently touted in the press, is possibly a fallacious one—yet it points to the fact that everywhere scientific men are constantly working and thinking along these lines. For some years, brilliant work in nephritis and nephrosis has been in progress at Ann Arbor and has already produced much of value.

Turning to primary kidney lesions and abnormalities which bring about disease and impaired function, let us accumulate a brief list of the conditions which we may encounter.

TABLE I. CLASSIFICATION OF RENAL DISEASES

(Excluding nephritis)

1. Inflammatory (Based on infection)
2. Anomalies
3. Nephrolithiasis
4. Neoplasms

†Dr. Robert E. Cumming is a graduate of the College of Physicians and Surgeons, Columbia University, 1917. He has practiced Urology in Detroit since 1921. On Surgical Staffs of Detroit Receiving, Grace, St. Joseph's Mercy and C. G. Jennings Hospitals. [The article concerning diagnosis of Kidney Disease was presented in the form of a lecture in the University of Michigan Post-graduate Course in Urology.]

Why are the changes resulting from infection in the kidney, or those brought about by anomalies, calculi, or tumors of such great significance? It is not only because the kidney is a vital organ, but because of the specific manner in which its physiological activity is influenced by these changes. Let us realize that the kidney has a dual function: First, that of excretion of soluble metabolic waste products. Second, the transportation of these waste products to the reservoir provided by nature, where they can be retained until convenience allows their disposal. Since the kidney is a closely-knit substantial tissue mass easily affected by minor interferences with this physiological activity, it is easy to conceive how simple gross volume changes may play havoc from a physical standpoint.

Further, this essentially tubular organ is lined by a sensitive mucosa which is, in turn, surrounded by several layers of muscle which take care of peristalsis and antiperistalsis in disease just as one would expect a muscular tube to do. In addition, there are sensory as well as motor nerves located in the renal capsule, its pedicle, and along the ureter, giving rise to pain which is both primary and reflex in type, and which often is a flag of danger, though most confusing at times. The urine is not propelled by means of gravity, nor from pressure within the kidney substance; nor is its movement dependent primarily upon the systemic blood pressure. Therefore, smooth transportation can occur only when the line is clear and when the propelling contractions are right, both as to intensity and direction. One may correctly compare the transportation of urine to that of the fecal stream.

Diseases of the kidney, then, are almost invariably associated with dysfunction; hence the value of separate kidney function

tests, which often measure not only the degree of secretory inefficiency but also that of transportation failure. One must not think of kidney *drainage,* unless there is an artificial contact established as by means of a drainage tube or an ureteral catheter.

Just as anatomical and physiological considerations are important, so the gross and microscopic changes brought about by disease or anomaly must enter into an understanding of dysfunction. Correlation of pathology with functional disturbances is much easier if one remembers basic anatomy and physiology. The best clinician and the best surgeon is that one who can picture in his own mind the actual state of the parts which he is going to treat.

The following table depicts, in general terminology, those conditions which we commonly encounter in kidney disease; certain explanatory and etiological notes are added for clarity. We do not use the term "Pyelitis," because it is a misnomer in the light of known facts of early kidney disease. Pyelonephritis is the more accurate designation.

TABLE II. KIDNEY DISEASE PROCESSES
(Based on dysfunction)

1. Inflammatory (Infection)
   a. Pyelonephritis (Pyelectasis)
   b. Pyonephrosis
   c. Focal { (Cortical) (Medullary) (Pelvic)
2. Hydronephrosis: (Sterile or Infected)
   a. Congenital; causes: Anomalous vessel—Ptosis—Neurogenic etiology.
   b. Acquired; causes: Stricture—Stone—Spasm Extra-renal pressure, as tumor, pregnancy, Tbc. glands.

Inflammatory lesions in the kidney, based upon infection, are due to a variety of organisms.

TABLE III. PATHOGENIC ORGANISMS
(Infecting agents responsible for urinary tract infections)

1. Specific Strains: Neisseria Gonorrhea, Mycobacterium tuberculosis, Hyphomycetes (Pathogenic moulds), Blastomycetes (Pathogenic Yeasts), Trichobacteria (Actinomyces, etc.), Treponema pallidum.
2. Aspecific Strains: (Frequently mixed or possibly admixed to Specific Strains) Escherichia (Coli), Eberthella (Typhoid), Salmonella (Paratyphoid) groups. Staphylococcus and Streptococcus groups.
   (Escherichia group causes 80 per cent of all these infections. Recognition of Bacterial Mutation important.)

The route of access by which organisms reach the kidney is of importance, because recognition of it aids in accurate diagnosis and correct treatment. Three routes are accepted, some organisms choosing one more frequently than others. The hematogenous route is the most important, the lymphatic probably the least so, while the ascending route can be most easily connected with associated disease such as obstruction at the bladder neck, bladder paralysis and adnexal pathology.

It is not necessary to define the clinical entities recorded in Table II. Pyelonephritis may be recognized in its acute form, or go unrecognized until it has become chronic. The acute type is usually characterized by sharp fever with daily remissions, persistent loin pain, leukocytosis (which varies according to the degree of systemic absorption and the patient's general state of health as well as his age) and pyuria, accompanied often by transient hematuria. Physical examination discloses local or generalized tenderness in the flank, extending to the abdomen. The pain may radiate along the course of the ureter. If the fever persists and remissions do not occur, one must suspect a progression of the process to that of pyonephrosis. The intermittent finding of pus in the urine is suggestive of temporary phases of cessation of peristalsis or an occluded ureter, so that a foundation of ptosis or associated hydronephrosis must be considered. This disease tends to recur, and usually does so if secondary to permanent changes in the kidney involved, and if there is a persistent extrarenal focus of infection. Pyelonephritis is frequently a common sequence of periods of bowel stasis in children and of acute upper respiratory infections in both children and adults. Preventive treatment naturally lies in the eradication and prevention of the causative disease, wherever it exists.

There are so many phases of a pyonephrosis that one cannot briefly describe the disease. Preceding pyelonephritis should be recognized from the history of a given patient. Also, any disease of the lower genital or urinary tract parts should be given consideration as of antecedent importance. Gonorrheal pyonephrosis is not so rare as is generally believed, and the ascension of infecting agents has already been mentioned. Persistent pain, or none at all; fever, or none at all; pyuria, usually but not always persistent; possibly leukocytosis; a palpable mass, or no determinable enlargement of the kidney—these are the confusing signs of pyonephrosis. Even in renal tuberculo-

sis, one kidney may go on to complete destruction with few typical symptoms and no conclusive findings.

Many of the generalities mentioned in connection with pyonephrosis apply to hydronephrosis in its various types and degrees. If infected, certain rather obvious signs will appear; if uninfected, a gradual loss of renal function (especially if the process is bilateral) may constitute the entire picture. If infection is present, the symptoms and findings are more or less identical with those of pyonephrosis; indeed, an infected hydronephrosis is to all intents and purposes closely akin to pyonephrosis. Acute symptoms from hydronephrosis are the result of sudden interference with an already faulty peristaltic state, and are usually due to sudden halting of the urinary stream from the involved kidney. The so-called Dietl's crisis occurs when the kidney capsule is stretched to a point causing acute pressure. Kidney function in hydronephrosis is preserved to a remarkable degree and over long periods, due to the ability of the renal blood to reabsorb water from the tubules, thereby preventing distention to a point where a total lack of function must follow.

Focal lesions in the kidney, which include early tuberculosis and "carbuncle," and processes which extend beyond the kidney producing perirenal inflammations and abscesses, are almost invariably associated with a hematogenous infection—the primary focus being recognizable in most cases. The symptoms of perirenal inflammation and suppuration are acute and perhaps the most typical of any kidney lesion. Severe and definitely localized pain, persistent fever, rising white count, and an absence of pus in the urine, though red blood cells may appear, constitute a picture which is not ordinarily confusing. Knowledge of preceding renal disease on the side involved may help a great deal in clarifying the diagnosis. The most classical symptom is local. exquisite tenderness in the costovertebral angle. There is a benign type of perirenal abscess producing few signs until a mass appears.

Urography has an all-important rôle in the diagnosis of these conditions. Each one produces more or less typical images, and each demonstrates certain types and degrees of dysfunction. The trained urologist and the trained roentgenologist must, of necessity, be consulted for correct evaluation of all urographic films. Next to the cystoscope only, in importance, the Roentgen ray has advanced the knowledge of physiology and pathology in the urinary tract to a point making urology one of the most exact medical and surgical sciences. Many times it affords the best, the safest and simplest method in a diagnostic search; rarely, however, does it suffice alone—since renal function, type of infection, and individual study of the two kidneys in a given patient are of paramount importance.

The common symptoms encountered in diseases of the kidney are shown in Table IV. Anuria is of three types: Pre-renal, renal and post-renal. The first implies the absence of secretory activity, and develops in nephritis as the result of overwhelming poisons. Renal anuria is that state found when the urine is prevented from escaping the kidney or the kidney pelvis. Post-renal anuria occurs when the kidney and kidney pelvis are themselves sound, but the urine is retained due to obstruction in the ureter. This term is sometimes used, though incorrectly, in instances of bladder retention. Pyuria and hematuria are self-defining and, for recognition, require only the use of a microscope. One should not discover these signs merely by gross inspection of the urine. Their significance is manifold, and their discovery simply a key to open up real investigative procedures.

TABLE IV. SYMPTOMS

Anuria
Fever
Pyuria
Leukocytosis
Hematuria
Muscle Spasm
Renal and Ureteral Pain

Fever, leukocytosis, and muscle spasm, the latter always associated to some degree with pain, vary with the changes in conductivity of the urine. A severe infection benefited by good pelvic and ureteral peristalsis and little, if any, retention of infected urine, may be self-limited. In this event, the fever and the increased leukocytosis may be so transitory as not to be discovered. Pain may be surprisingly absent or mild because of failure of the infection to produce tension in the area involved or the adjacent kidney tissue. On the other hand, renal pain is of great importance in many, many instances—as is pain along the ureter.

The radiation of pain from a blocked pelvis or ureter is described in the oldest treatises on medicine and surgery. Table V was prepared to suggest those conditions producing pain, with which renal and ureteral pain may be confused.

TABLE V.

Renal pain often cofused with:
1. Gastro intestinal tract pain (generalized)
2. Peptic ulcer pain
3. Appendicitis pain (colon)
4. Pleural pain
5. Intercostal neuralgic pain
6. Low backache
7. Nerve pain (herpes zoster)
(Renal and ureteral pain closely allied)
8. Pelvic inflammatory pain

Table VI was designed to remind us of certain general rules one may follow in evaluating renal pain.

TABLE VI. RENAL PAIN

1. Sharp, acute pain usually indicates an acute lesion.
2. Dull, aching pain usually due to chronic lesion.
3. Many lesions give typical pain. Stag-horn calculi, often no pain. (*Symptoms* and Pain are due to interference with physiology, not to the disease, *per se.)*

The etiological items shown in Table II, in connection with hydronephrosis, may enter into all clinical pictures of infection, in any of its stages. So, also, the various anomalies may complicate any instance of kidney disease. One must not forget the relative frequency of congenital single kidney, hypoplastic kidney, pelvic kidney, unilateral fused kidney, horseshoe kidney, solitary cystic kidney, and congenital polycystic kidney (always bilateral). Upon any of these infection may be an additional calamity, and one must be on guard—else he will come to grief in surgical treatment. For these conglomerate entities, a complete urological examination is almost imperative, and the most interesting roentgenograms are often those obtained in the study of anomalies. Renal tumors constitute another group of diseases which may produce any or all of the symptoms described, either of themselves or due to associated infection, ptosis, or anomaly.

Summary

A series of six tables are included with a brief, general discussion of diagnosis in Kidney Disease; these are offered for ready reference, and should aid in differentiation of the urological conditions one regularly encounters.

A STUDY OF EPILEPSY IN DETROIT

A Preliminary Report

O. P. KIMBALL, A.M., M.D.†
CLEVELAND, OHIO
and
DON W. GUDAKUNST, M.D.‡
DETROIT, MICHIGAN

The Detroit Board of Education and Department of Health have conducted a study of epilepsy in school children for the past two years. The need for individual study and special school work was recognized for several years but it was not until June, 1934, that this particular study was organized. It includes a study of the cause and treatment of the disease and an attempt to give the child an opportunity for school and normal social life.

In June, 1934, a survey was begun of five hundred fourteen cases known to the Board of Education. The children had either been excluded from school or were having difficulty to stay in school because of epileptic seizures. A nurse from the Division of School Health Service of the Department of Health visited the homes of these various children. A brief history was obtained in each case, giving information as to the types of seizure, the date of onset, present condition, and the kind and amount of medical care being received at the time.

†O. P. Kimball, A.M., M.D., Cleveland, Ohio, is a graduate of the Western Reserve University, 1918. He has contributed extensively to the prevention of goiter. He is in charge of special research for the Detroit Board of Education.

‡Don W. Gudakunst, B.S., M.D., is a graduate of University of Michigan Medical School, 1919. He is Deputy Commissioner and Director of School Health Service of the Detroit Department of Health. He is lecturer at Wayne University.

It was obvious from this history that in a number of cases there was nothing suggestive of epilepsy; others were receiving competent medical care from their own physicians or clinics of the city. Two hundred fifty-nine were referred to us for study. One hundred ninety-two of these were diagnosed as idiopathic epilepsy with no apparent etiological factor except the hereditary one manifested. Of this number one hundred and six were designed for further study and treatment. They were selected because of complete absence of evidence of brain injury of a traumatic or infectious nature and on the basis of having frequent and severe seizures. In addition the cooperation of the child's family was at times a deciding factor.

These one hundred six were placed under a specialized form of treatment consisting of a daily intramuscular injection of two (2) c.c. of a 10 per cent concentration in liquid form of lipoids from sheep brain. The material was prepared and supplied for the purpose of the study by Parke Davis Company Laboratories. This form of treatment was suggested by the earlier work of Choroschko of the Metchnikoff Institute in 1924 (one), Milyzen in 1925 (two), and Stawrowskaja in 1929 (two). These workers reported definite improvement in seizures both as to severity and number of attacks. They reported no untoward results in any case. This type of treatment seems also to have been suggested to other workers based upon observation made in giving Pasteur treatment to epileptic children. In certain instances the nature of the epilepsy attacks were definitely altered for the better.

Prior to the work in Detroit, Kimball had applied this form of treatment to thirty-two cases (twenty-four children and eight adults) in Cleveland. Of this number eight have been free from all seizures for a period of four years. An additional twelve, who are still under observation are reported by him as definitely improved. Twelve of the series showed no alteration in their clinical course.

One course of treatment consisted of five injections weekly for six weeks, or a total of thirty injections. A rest period of about one month was then allowed and the course repeated. At no time were there any severe reactions, either local or general. There has been a slight local reaction following the first few injections which has disappeared in each case after two or three days. This reaction occurs in about 10 per cent of the cases.

The following table gives the results of two years observation of these cases with the amount of treatment given, together with the results obtained:

Condition	Number	Per cent	Average No. treatments
Apparently cured...	13	12.3	53
Definitely improved	54	50.9	80
No improvement...	39	36.8	90
Total	106	100.0	—

In fifty-one cases treatment was started but was later discontinued because we recognized that we were dealing with brain injury instead of epilepsy.

Thirteen of the group classed as "free from seizures" have been without seizures for periods ranging from twelve to eighteen months. Eleven have been returned to regular schools where they are carrying on their work without any attention other than a visit to the clinic every month.

It has been observed in approximately one-fourth of the cases that shortly after the starting of the preliminary course of treatment there is a definite increase in the frequency and severity of the seizures. This phenomenon is usually manifested at about the end of the first week, but is of only a few days duration and is usually followed by a marked improvement. The time lapsing between the starting of treatment and the noting of improvement varies greatly. In a few cases an immediate improvement was noted; in others, treatment had to be carried out for a year before definite change was noted. We have set this period as a limit of treatment before classifying a case as resistant. Stawrowskaja, however, set two years as a minimum period before discharging a patient as refractory to this treatment. During the first year of this study five of the patients who were under observation died from epilepsy. This, however was expected since a study of the vital statistics records of the Department of Health for a ten year period preceding this study showed a total of one hundred and eighty-six deaths from epilepsy. Of this number one hundred seventeen were children or young adults.

In our study two of the deaths occurred in children who had been treated, but were at the time of death having their rest period.

In one other case death occurred immediately after treatment had been started, but the clinical picture and the type of seizure was in no way different from those experienced every six to eight weeks during the previous six years. The patient went into status epilepticus and did not recover. Two of the cases were under observation, but had not been treated. While considering the possibility of harm, it is to be remembered that frequently evidence of brain hemorrhage following a severe convulsion is seen. This condition has long been known and bears no relation to any treatment. The result of such an injury varies greatly from a slight paresis with a mental change frequently expressed by a stupor lasting for three to four weeks, to a fatal brain hemorrhage. It is important that this natural hazard be carefully explained to the parent lest an accident should happen following an injection and the treatment be blamed.

At the start of the work all treatments were given in a clinic set up in a centrally located school. However, it was soon observed that the maximum benefit to the children could not be secured in this manner. Because of this the Board of Education established a special observation school for both treatment and study of the children who had been excluded from regular classes because of the severity of their illness. Children are collected from all parts of Detroit by motor bus. During the first year of operation this school was operated as a "residence" school for boys only, the girls continuing to receive their treatments at the central clinic. The pupils were taken to school on Monday morning and returned to their homes Friday evening. During the week the school maintained its staff of teachers and one nurse in attendance the full twenty-four hours of the day.

No special diet was prescribed for the patients; but rather a simple well balanced diet was given all. Every effort was made to discourage the use of all forms of sedation. The barbiturates, especially phenobarbital were placed under ban, except where the child was taking it on orders of his private physician. A number of cases came to us actually toxic from the large amounts of phenobarbital that had been taken, as much as six grains having been taken daily for many months at a time. This amount seems to produce a stupor from which it takes months to completely recover. It was found in certain cases that what appeared to be withdrawal symptoms were caused by the complete and sudden cessation of this type of medication. It was necessary to withdraw the drug gradually in these instances. In none of the cases did the large amount of medication definitely alter the clinical course of the disease. Seizures occurred at the same rate and with the same severity both with and without the drug. In our opinion phenobarbital is indicated only in special instances in the management of epilepsy and then only for a short period of time. Our observations convinced us that large dosage taken continuously over long periods may actually be harmful to the health of the user.

From the beginning of this study special attention was devoted to investigation of the child's family history in order to determine the incidence of a definite hereditary factor in the disease. A simple statement on the part of the parent that no similar attacks had ever been experienced by either the father or mother was not accepted. It was insisted that at least three generations be reviewed in this respect. In certain instances treatment was withheld until a complete history was obtained. Because of the nature of the disease and the stigma attached in the minds of most people it was a common experience to have perfectly frank known cases covered up until such thorough investigations had been completed. In many instances this type of investigation necessitated correspondence with relatives in Europe or distant cities in this country. In the records completed for over three hundred children with the so-called idiopathic epilepsy a definite familial history was shown to exist in 57 per cent of all cases. In 25 per cent the family history was not known, and in only 18 per cent could it be said with any authority that there was no history of epilepsy in the last three generations. From the diagnostic point of view this hereditary factor is often the most important finding for differentiating idiopathic epilepsy from neuro-pathologic conditions presenting similar clinical symptoms.

The school of observation has been of even greater importance than was at first anticipated. First the common belief that a group of epileptics would have a tendency to have more seizures if kept together was found to be false. For six months there

were forty boys together from Monday morning to Friday evening and they had 50 per cent fewer seizures per day at school than they had at home. Exactly the same was true this year with the group of girls. Since making this observation study of home conditions has been conducted to learn the causative factors. We are now teaching the parents as well as the children how to live in order to avoid as many seizures as possible. In the talks to parents emphasis is placed on a simple diet, regular out of door recreation avoiding strenuous or dangerous exercise, regular habits of eating and sleeping, proper elimination, normal social habits, and avoidance of excitement and worry.

Daily observation made on these children in school over a period of weeks or months is of more value in determining their future, both as to treatment and possible education, than any clinical study or hospitalization can ever be. Also, the school of observation has definitely shown that these children can be in school and far the majority are physically better off in school than they would be at home unemployed.

The type of education is very important. The very nature of this disease will prevent them from ever making use of the ordinary education. We must plan a very specialized course for these children if they are to make practical application of their schooling.

The scope of this work and the need for such a school can be seen in the fact that in two years we have made contact with over six hundred families where one or more children are having seizures of some nature.

Case Histories

Case 1.—F. S., a male, aged fourteen. The first epileptic convulsions were noted at the age of seven. At the age of eleven he was hospitalized after a particularly severe seizure. He was unconscious for thirty-eight days and unable to talk for an additional period of two weeks. The clinical diagnosis was cerebral hemorrhage from convulsions. After this period there was no apparent change in the type or severity of convulsions, averaging about fourteen attacks per month until treatment was started. There is a definite history of similar convulsions in his family.

Lipoid injections were started September 27, 1934. There were five hard convulsions during the first ten days of treatment. During the first three months of treatment there were fifteen seizures. There were but five during the next six months. The last seizure occurred on June 10, 1935. Medication was discontinued on that date. This boy was returned to regular school in April, 1936, apparently free from epileptic symptoms.

Case 2.—R. W., a male, aged twelve. The first epileptic seizure of record or note occurred in February, 1933. In January, 1934, he was admitted to the University of Michigan Hospital for study and diagnosis. Following two series of encephalograms a diagnosis of essential epilepsy was made. The family history showed epilepsy on both sides with the addition of definite feeblemindedness on one side.

At the time of starting lipoid injection treatment, on June 28, 1934, this boy was on home teaching and was being given two grains of luminal daily. He was having one severe seizure a week. From July 5 to July 24, 1934, there were four severe convulsions. Treatment was continued until August 1934 during which time there were forty injections without a rest period. During the rest period there were three convulsions, the last being on September 17, 1934. Treatment was resumed on October 25, 1934, and continued to December 7, 1934. He was free from seizures until January 8, 1935, when he fell on the ice and struck his head severe enough to render him unconscious for twenty minutes. The following day there was a convulsion and one daily for a week. Treatment was started again. There were five seizures during February, March, and April with the last being on April 15, 1935. Treatment was discontinued on April 30, 1935. There have been no convulsions since that date and the boy was returned to regular school on January 1, 1936, apparently perfectly normal.

Case 3.—B. L., a female, aged thirteen. Convulsions started at the age of eleven. They were of the nocturnal type occurring about once a month. These were in no manner associated with the menstrual cycle. There were two or three petit mal type of seizures daily but these were never severe enough to warrant exclusion from school. The family history was entirely negative for any epilepsy for at least three generations on both sides.

At the time of starting treatment on August 21, 1934, this girl was taking the so-called Converse treatment which had in no way lessened the frequency or severity of her seizures. Injections were continued until October 10, 1934, for a total of thirty injections. During September, 1934, there were numerous light attacks with loss of consciousness but no convulsive seizures. Since October 1, 1934, there have been no seizures of any kind. The course of treatment was not repeated. During the past year this child has been doing outstanding work in her regular grade.

Conclusions

The injection of lipoids of brain tissue was followed by beneficial results in 63 per cent of cases of epilepsy with cessation of seizures in 12 per cent of cases.

A special school conducted by the board of education is a rational method of education and socialization of the epileptic child. Such a school has afforded an excellent opportunity for establishing an accurate diagnosis and prognosis.

The hereditary factor in epilepsy appeared to be much higher than ordinarily reported.

Phenobarbital is of limited value in the treatment of epilepsy. The continuous use of large doses is detrimental and does not decrease the severity or frequency of seizures. Its use by self medication and patented medicines is carried far beyond its usefulness.

PRINCIPLES OF DIET THERAPY*

SAMUEL S. ALTSHULER, M.D., F.A.C.P.†
DETROIT, MICHIGAN

One of the basic endeavors of medical science is the improvement of the conditions of life and the lengthening of the average life span. What progress has been made in this direction in the past has been accomplished as the result of our accumulated knowledge of infectious disease. Future developments along this line may be expected to come through an application of the recently established principles of nutrition. The future race will have not only increased longevity but a larger stature and greater vigor. Man is becoming more and more the master of his own destiny.

Until recently, dietetics was much concerned with deciding what articles of diet might have brought on a disease and what should not be eaten by the patient in order to avoid further harm. In other words, it was a doctrine of omission. Today we know that the sick man needs all the things the healthy man must have in the latter's effort to avoid illness.

Although in short illnesses a brief fast is permissible, and in the case of a patient who is inactive over a long period of time the essential entities may be taken in smaller quantities, in general every therapeutic diet must contain at least all the material known to be required by the normal body.

Normal Diet

Let me say a few words first about the normal adequate diet (Fig. 1). Briefly, we can say that the body requirements are adequately met by including in each day's diet:

Milk, 1 pint.
Vegetable, 2 other than potatoes.
Fruit, 1 serving, preferably raw.
Meat or fish, 1 portion.
Eggs, 3 or 4 a week.
Whole grain cereal or bread.
Cream and butter.
Carbohydrates and fat to make up caloric requirement.

The normal adult is in caloric equilibrium when he maintains a constant weight. The protein requirement of ⅔ gram per kilo of body weight will be supplied by a pint of milk, a serving of meat, eggs or cheese, and what protein there is in cereals, fruits and vegetables which are included in a normal diet. Additional quantities of protein may be a matter of habit, not necessity. The pint of milk will also furnish about ½ gram of the ¾ gram of calcium necessary for adults. The meat or its substitute, milk and cereals will insure adequate phosphorus (⅓ gram daily).

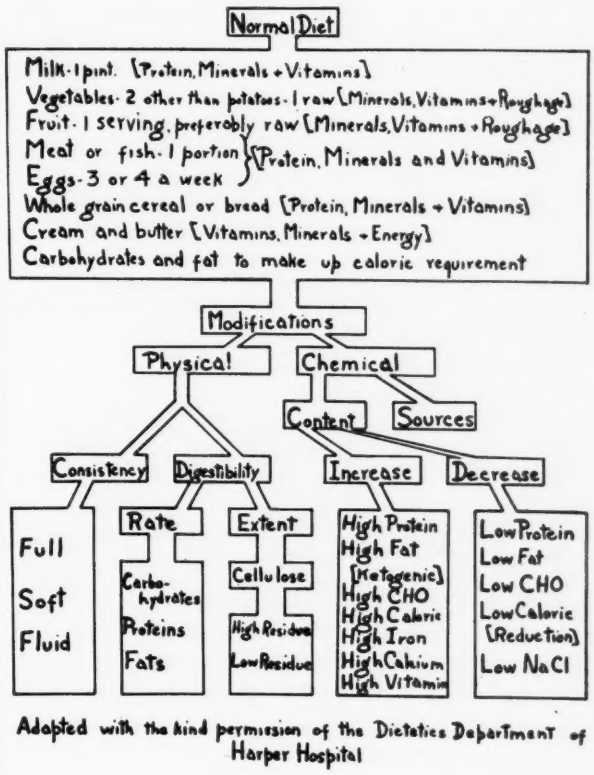

Fig. 1.

The need for iron is taken care of automatically in a diet wisely chosen in other respects. Vitamin A will be found in milk, butter and eggs, and a serving of green or yellow vegetable; vitamin B, from whole grain cereals and three or four servings of fruit and vegetables; vitamin C from a serving of citrus fruit, raw cabbage or tomatoes; vitamin G (B2) from milk and

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†Dr. Altshuler graduated from the University of Michigan Medical School, 1925. He specialized in Internal Medicine. He was formerly instructor in the Department of Internal Medicine, University of Michigan College of Medicine. He is Assistant Physician to the Out-Patient Department of Harper Hospital; Attending Physician and Chief of the Department of Metabolism, William J. Seymour Hospital, Eloise, Michigan. He is a Fellow of the American College of Physicians.

meat. Vitamin D is the only food factor that we feel may have to be added in the form of Cod Liver Oil, especially in localities where sunshine is not plentiful.

Therapeutic Diets

A therapeutic diet should be a modified normal diet, and this may be done in two ways:

1. Vary the physical form, which includes the texture and flavor of food.

2. Vary the chemical composition, which includes the calories, carbohydrate, protein, fat, minerals and vitamins of the total foods in twenty-four hours.

In prescribing a diet it must be decided which of these characteristics of the foodstuffs need to be modified to fit the abnormality we wish to treat. For example, in a disturbance of the digestion of fats, we should limit that factor in the diet. In the case of an underweight patient with anorexia, we should modify the caloric value without any increase in bulk. In a case of spastic bowel, we should eliminate foods with coarse fiber.

However, it must be borne in mind that whatever the abnormality, the material needs of the body are the same. Therefore, in planning our treatment, the diet must be complete and at the same time permit the modification in question.

What are the indications for special diets? Diet cannot hope to attack morphological abnormalities, but, considering disease as a biochemical and biophysical problem, the functional abnormalities that cause it or accompany it can be corrected or limited by diet. For example, in diabetes mellitus the functional disturbance is a lessened ability to oxidize glucose. This is responsible for the signs and symptoms and complications of the disease. A diet may be so devised that the oxidation of its glucose content is within the capacity of the patient. When this has been accomplished, all the secondary disturbances abate and the patient who adheres to the diet may lead an otherwise normal life.

Physical Modifications

Our first method of modifying the diet, that of varying the physical form, includes changing the factors of consistency and digestibility.

Modifications of consistency are designated as fluid, soft and full diets. The fluid and full diets are universally agreed upon, but what should be included in a soft diet seems still to be controversial. The soft diet is prescribed for only a short period during a time when eating is not very attractive to the patient. It should provide little variety and low residue with only maintenance calories, and should require little mastication. There is no reason why the inclusion of scraped beef or the white meat of chicken in such a diet should be looked upon with horror.

The term "digestibility" seems to have more than one meaning. Scientifically, we mean the percentage of the nutrients of the food which are available to the body for use either as a fuel or building material—it may sometimes be expressed as "the coefficient of digestibility." In common parlance, digestibility means the ease with which food is assimilated and the comfort it gives.

A surprisingly large percentage of food is utilized. Atwater has shown that the following average amounts are utilized: protein, 92 per cent; fat, 95 per cent; carbohydrate, 97 per cent. Foodstuffs from animal sources are more completely utilized than those from vegetables. For example, protein from animal averages 97 per cent, from vegetable 84 per cent; fat from animal 95 per cent, from vegetable 90 per cent; carbohydrates from animal 98 per cent, from vegetable 97 per cent. Fat is commonly believed to be difficult to digest but Langworthy in his studies of animal fats found that butter is 97 per cent utilized and mutton 88 per cent. He also found that the digestibility of other foodstuffs was not altered by the presence of considerable fat. He pointed out that fats of low melting point were more completely assimilated than those of higher melting point, thus the coefficient of digestibility ran as follows: butter 97 per cent, lard 97 per cent, beef fat 93 per cent and mutton 88 per cent.

The completeness of the utilization of a food depends upon its physical state, hence the advantage of cooking. Thus raw egg white was 80 per cent and cooked egg white 88 per cent digested. Psychic prejudice does not influence the ultimate utilization of food.

TABLE I

Article of Diet (100 g. portions)	Evacuation Time		
	Rapid	Slow	Average
Beef	2:35	3:25	3:00
Lamb	2:30	3:20	3:00
Veal	....	....	2:50
Pork	2:45	3:40	3:15
Chicken	2:45	3:45	3:15
Turkey	3:00	3:45	3:30
Guinea hen	....	4:00	4:00
Fish	....	....	2:50
Milk			
Cows'			
400 c.c.	....	....	2:30
75 c.c.	....	....	1:15
Mothers'			
225 c.c.	....	....	2:25
150 c.c.	....	....	1:40
Gelatin	....	....	2:00
Eggs	2:15	3:15	2:40
Vegetables	2:00	2:30	2:50
Fruits	1:35	2:20	2:00
Bread, cereals	....	....	2:40
Cakes	....	....	3:00
Pies	....	....	2:30
Puddings	....	....	2:20
Sugars, candies	....	....	2:05
Ice cream	....	....	3:15
Ices	....	....	2:35
Nuts			
25 g.	....	....	3:00
50 g.	....	....	4:00

TABLE II

Article of Diet (100 g. portions)	Highest Average Acidity (c.c. N/10 alkali to neutralize 100 c.c. juice)
Beef	120
Lamb	135
Veal	140
Pork	120
Chicken	125
Turkey	140
Guinea hen	110
Fish	130
Milk	
Cows'	
400 c.c.	100
75 c.c.	45
Mothers'	
225 c.c.	90
150 c.c.	60
Gelatin	70
Eggs	80
Vegetables	75
Fruits	90
Bread and cereals	80
Cakes	90
Pies	90
Puddings	90
Sugars and candies	70
Ice cream	105
Ices	65
Nuts (25 to 50 g.)	100

Secretory and Motor Responses

The other meaning of digestibility, namely, the ease and comfort with which food is disposed of by the stomach and intestines, depends mainly on the secretory and motor response which the food calls forth and the subjective sensation which it produces. The physical state of the food, its chemical composition, its appeal to appetite and sometimes the idiosyncrasy of the individual are factors.

Hawk and his associates have studied the secretory and motor responses called forth by various foods in healthy individuals. They assumed that the foods which remain in the stomach a shorter time and call forth less secretory response are most digestible.

Table I shows Hawk's figures for the evacuation time of various foodstuffs.

He found that normally there were slow and fast stomachs. Studying this table, we see that beef, lamb, veal, pork, chicken and turkey have very little difference in their evacuation time. Furthermore, they found that roast beef is handled by the stomach with equal ease whether it is rare, medium or well done. Hamburger steak, stewed beef, corned beef and dried beef were in the stomach the same length of time as roast beef. Frankfurters and sweetbreads left more quickly.

In the case of pork meats, pork chops and fried ham took a longer time, and bacon the longest of all, taking four and a half hours. This is most interesting in view of the fact that many pediatricians are giving bacon to children before they allow any other meat.

The total acidity produced by various foods is shown in Table II.

It is interesting to note that lamb produces more acidity than the other meats and that pork produces no more than beef. Thus, since the pork meats are always eliminated first, both in evacuation time and acidity, the digestibility of this meat is no different than that of beef.

Eggs leave the stomach sooner than meats. Raw egg whites leave more rapidly and produce less response than any other egg preparation. Egg yolk has a longer evacuation time and more secretion. Hard-boiled eggs require ten minutes longer to evacuate but the acid response is the same as the soft. Fried eggs, strange to say, were handled by the stomach as easily as boiled eggs. It was interesting to note that eggs

give rise to a considerable secretion of acid, although less than meat.

Among the vegetables, sweet potato had a longer evacuation time than white potato, but whether boiled, creamed, mashed or baked the time was not immoderate. Potato salad and potato chips were handled with the same ease. Vegetables low in protein such as carrots, celery, tomatoes, cabbage, lettuce and cucumbers, leave the stomach rapidly, develop moderately high free acid, but little combined, and leave the stomach without great change. The boiled vegetables showed more disintegration.

Pies, pastries and puddings were not difficult for the stomach to handle. The pie crust takes longer than the whole pie. The addition of ice cream to the pie makes very little difference, but the addition of cheese lengthens the time in the stomach. The custard pies had a high acid-combining power. Fruit pies had low acid-combining power. Angel food cake had a longer evacuation time and a higher acid value than devils' food cake.

Hawk's studies of milk are particularly interesting because this food is included in very nearly all therapeutic diets. The studies were made with a subject who was a regurgitator and who could empty his stomach at will, either fractionally or completely. The following observations were made: Milk drunk rapidly makes smaller curds and leaves the stomach more quickly than when sipped. Skimmed milk produces the toughest curds and has the longest emptying time. Whole milk gives softer curds and leaves the stomach sooner. Boiled (5 minutes) milk produces smaller, soft flaky curds which leave the stomach sooner than whole milk. Inasmuch as boiling for five minutes does not alter the nutritive properties of the milk, it would seem that boiled milk should be given dietetic preference. The higher the fat concentration, the smaller and softer were the curds. This observation is of practical importance in relation to our use of milk and cream mixtures in ulcer diets. When 2.5 grams of sodium bicarbonate were added to 500 c.c. of raw whole milk, the curds were smaller and softer than those without the bicarbonate, but this was slower leaving the stomach than boiled milk. Pasteurized milk is intermediate between raw and boiled milk. The temperature of the milk made no difference. If water was taken before the milk, it made the curds softer and smaller. From the tables, it has been seen that milk taken in small amounts (75 c.c.) has the most rapid emptying time and produces the lowest acidity of any of the foodstuffs studied.

Residue

In speaking of residue, we must distinguish between moist residue, which has to do with bulk, and dry residue, which has to do with fiber content of the excreta. For example, Hosoi, Alvarez and Mann found in their experiments that bread, butter, soft-boiled eggs and milk have a high moist residue but a very low fiber content. Thus, if we desire to give the digestive tract a rest and have as few bowel movements as possible, we would not include these foods in the diet. On the other hand, lean meat, rice, hard-boiled eggs and sugars had a low moist residue and also a low fiber content, and would be preferable in such a condition. This is an important point inasmuch as the milk diet is an old standby in the treatment of all disorders of the gastro-intestinal tract. Patients with diarrhea many times do poorly when placed on milk, but will improve on a diet containing lean meats and pure sugars.

The aforementioned investigators, Hosoi, Alvarez and Mann, made an anastomosis between the terminal ileum and lower rectum in dogs to study food residues. They regarded the relationship of the moist weight of feces to moist weight of food as an index of efficiency of digestion. They found the startling fact that milk gives a large residue as well as fruits, breads, potato, lard, butter, Swiss cheese, soft-boiled egg, raw egg albumen and lactose. These foods would, therefore, be regarded by this standard as difficult of digestion. On the other hand, meat gives the smallest residue and, therefore, must be regarded as easy of digestion. In the same group with meat were hard-boiled egg, liver, rice, farina and cottage cheese. They found that the lowest dry residues were seen with dextrose, sucrose, gelatine, liver, meat, bread and milk, lard and butter. The largest dry residues were seen with potato, raw bananas, lactose and raw apples. Rice was almost perfectly digested.

The combination of bread with milk and that of egg with milk enhanced the digestibility of both foods; thus, egg-nog would be easily digested.

The physical state of the food and consequent length of time in the stomach influenced the digestibility. Meat was more carefully digested when eaten as lump than when finely ground, and potatoes were better digested in lump than when mashed. Swiss cheese was better digested in lumps than when scraped. These results are surprising in view of the usual prescription of our bland, low residue diets. Although we cannot apply these experiments on dogs unreservedly to man, still some revision of the old dietary beliefs seems in order.

Certain foods are shunned because they are believed to be difficult to digest. For example, many people believe that they cannot drink milk. Unless there is evidence of an allergic reaction or of an overactive, sensitive intestinal tract, it is best to insist that they take milk in view of the fact that it is one of the most valuable foods and is usually well borne by the vast majority of sick people.

Cheese is commonly thought to be indigestible but no scientific basis for this has been found. Hot breads when light and well made and when eaten slowly are well borne. Pies, if the crust is crisp and well-made, not soggy, are easily digested. Sweets taken in small amounts at the end of the meal do no harm.

Oils and fats are ordinarily well borne if taken in moderation. Fried foods soaked in grease are slow of digestion because the fat prevents ready access of the digestive juices. If fried in deep fat, however, which quickly produces a coagulum on the surface and thus prevents the penetration of fat to the interior of the food, they are well digested.

Cooked foods are more digestible than raw. Foods subjected to extreme heat for a long period of time, however, show an opposite effect.

Alvarez, in a recent article, considers digestibility in the sense of the "likelihood that the food will disagree in some way with the person who eats it." This, he says, may be on an allergic basis or there may be found in the food something that can cause irritation of the bowel, as druglike substances or indigestible cellulose. He suggests that the diet be fitted to the individual, first determining what foods disagree with that individual.

Deficiencies

Of the conditions requiring therapeutic diets, the most obvious are those due to deficiency. Such conditions demand very little effort on the part of the person prescribing the diet. The diagnosis indicates precisely what adjustments need to be made, whether the inadequacy is due to a lack of vitamins, of minerals, of proteins, of energy or of fiber. It is evident that disturbances arising from a deficiency are corrected by a diet normal for the individual augmented by a greater supply of the properties he may lack.

Chronic undernutrition has been shown by Strang and his associates to be due, not to metabolic anomaly nor to abnormal functioning of the endocrines, but merely to a lack of adequate food intake. Some of the post-operative invalids have received inadequate diets sufficiently long to permit avitaminosis.

The various clinical manifestations arising from avitaminosis are being better connected with the specific vitamin of which there is a lack. Authorities on nutrition consider that the changing conditions of man's environment have deprived him of part of the vitamin D that he used to get by natural methods, and they feel that an additional supply of this vitamin is of benefit, especially in the case of a growing child.

The development of information about anemia during the past decade has brought about the clear recognition that this condition may be dependent upon mineral deficient nutrition.

Among the conditions from which deficiencies arise is that of excessive utilization, which may make inadequate a diet that has served well in the past. It should be common knowledge that during pregnancy and lactation there is need for additions in certain minerals, protein and energy-producing foods. Briefly, we can say that the diet for the pregnant and lactating woman should include daily one and a half quarts of milk, a serving of meat or cheese, a serving of liver or eggs (for the iron content), three or four servings of vegetables and fruits including one green leafy vegetable or a citrus fruit as a source of vitamin C. Additional vitamins should be secured by the use of yeast and Cod Liver Oil. The patient deserves a definite, detailed explanation of the dietary changes during pregnancy. Too many physicians,

when finding a trace of albumen in the urine, merely advise the patient to "omit all meat and eggs" in the diet or, if they do not wish the patient to get too heavy during pregnancy, advise her to "leave out all starchy foods." Labor-saving as this may be, it is also thoughtless and unfair to the mother and her child.

Patients suffering from prolonged fevers, another form of excessive utilization, should not be starved, but on the contrary more calories should be given in easily digested form to compensate for the increased metabolism. It was shown long ago that the convalescence from typhoid fever was prolonged when the diet had been deficient in energy-producing foods.

Of the deficiencies due to excessive loss, in the case of anemia following hemorrhage, the addition of liver and iron to the normal diet will hasten the restoration to the normal blood level. The loss of chlorides in conditions associated with vomiting will cause a marked alkalosis unless the chlorides are replaced either by hydrochloric acid if vomiting has stopped or saline solution by injection. Diarrhea, vomiting, sweating and diuresis will cause a marked dehydration and this water must be *rapidly* replaced either orally or as a 5 per cent glucose injection, else the life of the patient is endangered.

Abnormalities of the Gastro-intestinal Tract

Physicians are most concerned about diet in the treatment of diseases of the gastro-intestinal organs. Too often they resort to a negative type of therapy—omitting all foods without giving sufficient consideration to the possibility of thus creating deficiencies. An example of this is the advice: "Limit your diet to milk." The willingness of the doctor to believe the patient that certain wholesome foods are "poisoning" him, or cannot be digested by him, has been the cause of many conditions of "nervous" or "functional" indigestion.

The digestive and absorptive mechanism is remarkably efficient and not easily disturbed. Barring organic disease, it can nearly always be counted upon to do its work very well if the patient will but eat normal food and let nature take its course. But if the individual has no confidence in this mechanism and is convinced that he must pamper it, his phobias will succeed in impeding digestion. Dietary adjustment is not the proper treatment in such cases. People of this type need psychotherapy. After such misinformed sufferers are excluded, one is in a position to deal rationally with the people who really have something wrong with the digestive tract.

In conditions of over-activity of the gastro-intestinal tract, food should be so selected that it will not stimulate the digestive tube. This is done by selecting food whose odor, taste and color are not pronounced; by serving meals that are neither hot nor cold; by small meals; and by offering the food in a finely divided state. An example of this is the ulcer diet, whose purpose is to furnish adequate nutrition while avoiding mechanical, chemical and thermal irritation. Eliminate hard particles that might irritate or increase the injury of a diseased lining membrane. This necessitates consideration of the fiber content of foods. If the lesion is in the stomach, even cooked pureed vegetables cannot be used, but they would not irritate the lower bowel should that be the seat of the trouble. Bran or skins of fruits and shells of legumes and seed cannot be used in the case of any denuded spot anywhere in the tract. The necessary bulk may be secured in such cases by adding a hemi-cellulose as agar-agar or mucilose. Diet for patients with diarrhea should contain foods having a low fiber content and producing a low moist residue.

Stimulation of the gastro-intestinal tract where there has been too little activity, in such cases as lack of appetite or invalidism, may be achieved through selection of foods considering the likes and dislikes of the patient and presentation of the food in its most appetizing, attractive and palatable form. Variety is important in arousing interest and stimulating digestion. The device of offering small amounts at frequent intervals often is successful in maintaining the patient's interest in foods.

Obesity

Obesity is due to an intake of energy greater than the outgo. It is true that certain endocrine disturbances may lower the metabolism, decreasing the number of calories necessary for maintenance, but if the inflow is kept less than the outflow of

energy, the patient will always lose weight. This is accomplished by a diet which will adequately meet the patient's requirements except in energy value. One gram of protein per kilo of ideal weight is necessary to maintain nitrogen balance. A reduction diet given to a patient must be a definite prescription. Write out exactly what should be included, from what foods they may choose and how much they are to take. It is an error merely to advise the patient to "leave out all desserts and fats." Under such a system they follow a haphazard and uncertain diet under constant danger of diseases of deficiency. In middle-aged or elderly patients it is dangerous to attempt to effect too rapid a reduction.

Allergy

Food allergy is becoming more widely recognized as a cause for symptoms associated with the taking of foodstuffs. Without going into the problem to any extent here, may I remind you that if it is discovered that some staple food must be eliminated from the diet, a way of compensating for that food must be found? For example, if milk be stricken from the dietary, the patient must have some other way of obtaining calcium.

Cardiac Diet

The principles of the cardiac diet need to be more widely understood. Although the caloric value may be reduced, it should be adequate, else we should but add a condition of undernutrition to the already weakened heart. If the patient is overweight, it is well to give him less fat to reduce the weight, but care must be taken that the reduction be not more than two pounds a week and preferably only one pound per week. Protein foods should not be omitted altogether as is so often done by having the patient abstain from all meat, fish, eggs and cheese. There must be one gram of protein per kilo if the patient is given a reduction diet. The meals should be small and given frequently for a large meal can cause a definite depression of the T waves in Leads I and II. If edema is present, restrict the salt intake to that contained normally in the food. Do not restrict the fluids too much. Give sufficient fluids so that there is 600 to 1,000 c.c. of urine excreted in twenty-four hours. A diet with an acid ash will help to eliminate the edema fluids from the tissues.

Diabetes

The dietetic treatment of diabetes mellitus is too large a subject to take up here. Every physician who intends to treat diabetic patients should make himself thoroughly familiar with some one method of treatment and follow it closely. It does not make any difference in the ultimate result on the patient which type of diet you use—high or low carbohydrate, high or low fat—as long as you fulfill two requisites: Keep the patient sugar- and acetone-free, and give him enough calories for maintenance and to carry on his usual occupations.

Renal Disease

The dietary management of all renal diseases must accept one fundamental fact, namely the lessened ability of the kidneys to form concentrated urine. This condition may be met by increasing the supply of water and by diminishing the formation of solids that leave the body by way of the kidneys. The first part is simple enough: Increase the intake of dietary fluids. The second is more difficult. It is not easy to reduce the amount of solid excretory products. The prime factors in the dietary treatment of the non-edematous patient with renal disease are:

1. The patient must have maintenance calories.
2. The protein intake must be ⅔ gram per kilo of average body weight. In this connection use milk, cheese and eggs as the chief sources of protein. Animal tissues should be given sparingly if at all, since they are higher in the non-protein nitrogenous substances which must be excreted by the kidneys.
3. A fluid intake must be established sufficient to keep the specific gravity of the urine well below the maximum attainable by the kidneys.

Edema

The presence of edema or the tendency toward its development requires further adjustments. Foods should be selected so that there will be as much acid as base released in the combination. Furthermore, avoid foods high in sodium. Use salt-free bread and butter and allow no sodium chloride in

cooking or at the table. Potassium chloride does not increase edema and may be used as a substitute. Increase the acidity of reaction by administering acid-producing salts as ammonium chloride (6 to 10 grams daily in capsule). Fluids are forced to assure a sufficient amount of water—4,000 to 5,000 c.c. daily is needed—so that the kidneys may remove all of the extra sodium chloride forming in the body as a result of the intake of acid-producing drug. When the edema is gone, the ammonium chloride is discontinued but we adhere to the neutral low salt diet to prevent its recurrence.

Conclusion

I have touched briefly on a good many points, but in closing I should like to repeat the two which seem to me most cogent:

First, that a therapeutic diet is a normal diet that has been modified to adapt it to a diseased condition and should contain all the materials known to be required by the normal body.

And second, that the dietary prescription should be as definite as any other prescription. It should leave no uncertainty in the patient's mind about the type, the quality and the quantity of foods to be consumed. You cannot really expect the patient to know more about nutrition than what he hears on the radio, and you must tell him exactly what and how much you want him to include in his diet.

Bibliography

1. Alvarez and Hinshaw: Foods that commonly disagree with people. Jour. A. M. A., 104:2053, (June 8) 1935.
2. Atwater, W. O.: Principles of nutrition and nutritive value of food. Farmer's Bull. 142, U. S. Dept. of Agric., p. 24.
3. Coffin, Joseph: The lack of vitamin D in common foods. Jour. A. M. A., 105:119, (July) 1935.
4. Hosoi, Alvarez and Mann: Digestion efficiency with various foods and under various conditions. Arch. Int. Med., 41:112, (Jan.) 1928.
5. McLester, J. S.: Nutrition and Diet in Health and Disease. W. B. Saunders Co., 1931.
6. Minot, George R.: The anemias of nutritional deficiency. Journal A. M. A., 105:1176, (Oct. 12) 1935.
7. Newburgh and McKinnon: The Practice of Dietetics. Macmillan Co., 1934.
8. Rehfuss, Bergein and Hawk: Response of normal human stomach to various standard foods. Am. Jour. Med. Sci., 171:359, 1926.
9. Strang and Evans: Undernutrition and its treatment by adequate diet. Ann. Int. Med., 7:45, (July) 1933.
10. Strang, McClugage and Brownless: Metabolism in undernutrition. Arch. Int. Med., 55:458, (June) 1935.
11. Langworthy and Holmes: Digestibility of some animal fats. U. S. Dept. of Agric. Bull. 310.

THE INTERPRETATION OF ENCEPHALOGRAMS*

RUSSELL N. DE JONG, M.D.,† and RAYMOND W. WAGGONER, M.D.‡
ANN ARBOR, MICHIGAN

Notwithstanding its relatively recent development, encephalography has become an important addition to the neurologist's diagnostic armamentarium, and during the sixteen years since its introduction it has come into common use in neurologic and neurosurgical clinics. The present method of replacing the cerebrospinal fluid by air by the lumbar route was instituted by Dandy in 1919, one year after he had first introduced air directly into the cerebral ventricles as a diagnostic procedure in certain cases of hydrocephalus and brain tumor. Within the next few years similar procedures were described independently by Widerõe in Norway and by Bingel in Germany. During the intervening years encephalography has come to be used as a diagnostic and therapeutic measure in all neurological centers. Over 150 encephalograms were done in the University Hospital during the past year.

It is felt here that encephalography or the injection of air by the lumbar route is more advisable in most cases than ventriculography or the introduction of air directly into the ventricles. Encephalography insures more complete drainage of the cerebrospinal fluid, and consequently better delineation of the intracranial structures may be obtained. By this method also not only the ventricles but the cerebrospinal fluid pathways are replaced by gas, and as a result the subarachnoid channels and the basilar cisterns may be identified, and changes in them may be noted. In most cases encephalography is as safe as ventriculography and it can be done with less inconvenience to the patient. Ventriculography has the disadvantage of being a relatively major surgical procedure accompanied by a definite trauma to the brain.

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†Dr. DeJong was graduated from the University of Michigan in 1929 and received his M.D. degree in 1932. In 1936, he received an M.S. degree in neurology. At present he is Instructor in Neurology, University of Michigan.

‡Dr. Waggoner was graduated from the University of Michigan Medical School in 1924 and received an Sc.D. from the Graduate School of the University of Pennsylvania in 1930; he is, at present, Associate Professor in Neurology, University of Michigan.

At the University Hospital ventriculography is reserved for cases with marked increase of intracranial pressure, as judged by the presence of papilledema, increased pressure at spinal juncture, and roentgen evidences of increased pressure.

The interpretation of encephalograms requires not only a familiarity with roentgenography in general and cranial roentgenography in particular, but a thorough knowledge of the anatomy of the brain and of the circulation of the cerebrospinal fluid. In the past the impressions gained from encephalograms have been based mainly upon the gross abnormalities of the ventricles and the subarachnoid spaces. The value of encephalography will no doubt continue to increase as the finer cerebral structures are recognized in the films and the significance of variations in them is appreciated. By thus increasing our knowledge of intracranial abnormalities and of the methods of recognizing them the scope of encephalography is being broadened from use only in gross changes such as neoplasms, cysts, and developmental anomalies to use in the various vascular, degenerative, and inflammatory conditions.

The accuracy of encephalographic diagnosis depends upon a thorough acquaintance with the appearance of the normal cerebral structures. The ventricular shadows are the most easily seen and even in poorly executed encephalograms the lateral, third, and fourth ventricles and their connecting structures may be visualized. The lateral ventricles are normally symmetrical, and when well filled with air one can distinguish the anterior or frontal horn, the body, the posterior or occipital horn, and the inferior or temporal horn. The size of the ventricles varies some within normal limits. The interventricular foramina or the foramin of Monro form a connection between the lateral ventricles and the third ventricle. At times these structures can be made out in the lateral view. The third ventricle is a midline cavity which connects the foramen of Monro anteriorly with the Sylvian aqueduct posteriorly. In the antero-posterior view it appears in the midline as an elongated oval ventral to the shadows of the lateral ventricles, and in the lateral encephalogram it is seen as a trapezoidal structure, from the caudal aspect of which the aqueduct can be followed to the fourth ventricle. In the antero-posterior view the fourth ventricle may be hidden by the frontal sinuses, the occipital bone, and the third ventricle. In the lateral view, however, it is seen as an isosceles triangle with the long side forming the rostral border or floor.

Air injected into the spinal subarachnoid space is also distributed throughout the cerebrospinal fluid pathways over the surface of the brain. It is consequently seen to outline the cerebral sulci and convolutions, certain of which are regularly visible in the encephalogram while others are seen only when there has been atrophy of the brain substance. The subarachnoid channels normally are most clearly visible over the frontal and parietal surfaces of the brain superior to the Sylvian fissure. The Sylvian fissure is seen as a cleft on the lateral aspect of the brain, and by following it the island of Reil frequently may be outlined. If one observes closely the fissure of Rolando is seen, along with some of the other fissures present on the lateral aspect of the brain. Medially is the longitudinal fissure, and the callosal and cingulate sulci may be demonstrated in most instances. The gyri lying between these various sulci may be delineated if the sulci are clearly seen. In cases of cortical atrophy some of the smaller sulci are visualized.

In certain regions on the ventral surface of the brain the arachnoid and pia are widely separated to form the spaces known as the subarachnoid cisterns. These structures communicate with each other and with the spinal subarachnoid space. They are usually seen in the encephalogram and are fairly constant in appearance. The cisterna magna communicates with the subarachnoid space of the spinal canal and is bounded by the medulla and the tela choroidea of the fourth ventricle anteriorly, by the vermis of the cerebellum above, and by the cerebellar hemispheres laterally. Anteriorly and laterally this cistern communicates with cisterna pontis, which surrounds the anterior and lateral aspects of the pons and extends cephalically to communicate with cisterna interpeduncularis. This is an irregular rectangle between the peduncles and the infundibulum. Cisterna chiasmatis is a shallow cistern above and slightly anterior to the pituitary fossa. The cisterna ambiens or venæ magnæ cerebri may contain a small amount of air under normal conditions, although large amounts of air are abnormal. This is just above the cerebellum and extends ante-

riorly to the corpora quadrigemina and the pineal body, and air in this cistern may outline these structures. Paired anterior projections of cisterna ambiens are occasionally seen. In addition to the above structures, there are certain other findings that one occasionally sees. The choroid plexus may be visible within the lateral or fourth ventricles, and may easily be mistinterpreted as an intraventricular lesion, especially if calcification is present. Occasionally one sees what appears to be air outlining the cerebellum. It has been felt by us that this might be evidence of cerebellar atrophy, but this has not been confirmed by autopsy material.

Correct interpretation of encephalographic films depends upon a variety of factors. It is important that the air injection be done properly by an experienced operator. Good roentgen studies are necessary to bring out the various structures, normal or abnormal. Quite as important, if not more so than the operative or roentgen technic, is the correct interpretation of the films. In order to increase our knowledge of normal and abnormal cranial structures and our ability to interpret them in the encephalogram, we have been interested in comparing the picture seen in the encephalogram with the postmortem examination of the brain in a few patients that have had encephalograms and have later died. The findings in a few of these cases follow.

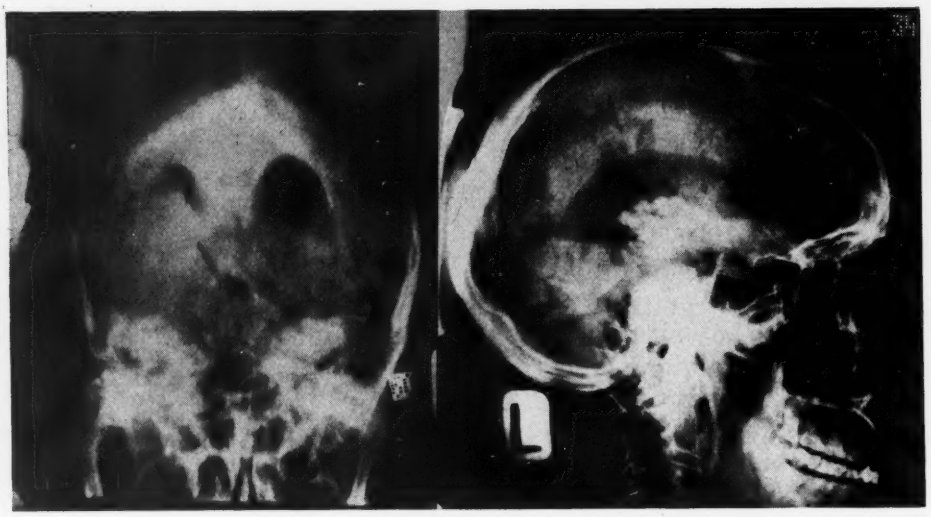

Fig. 1. Encephalograms showing narrowing of the frontal horn and body of the right ventricle with dilatation of the left lateral ventricle.

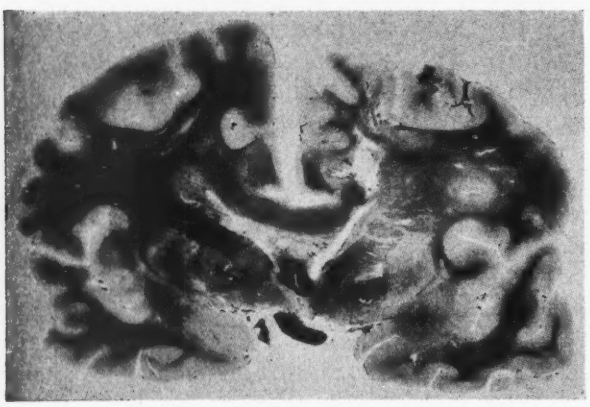

Fig. 2. Section of the brain (Weigert stain) showing the postoperative defect with tumor tissue invading the right fronto-parietal region and the knee of the corpus callosum.

Report of Cases

1. A man, aged fifty, was admitted to the hospital complaining of convulsions involving the left side of the body and of weakness of the left arm and leg. The symptoms had been present for a period of three years, with the late onset of bitemporal headaches, diplopia, and incontinence of urine. Examination showed a left hemiparesis with decreased sensation and astereognosis on the left. The diagnosis appeared evident but for confirmation an encephalogram was done. This showed depression of the frontal horn and body of the right lateral ventricle. There was also slight flattening of the superior border of the left ventricle, which was dilated in comparison with its fellow on the right. The subarachnoid channels were better visualized over the left than the right hemisphere and on the right they were absent over the vertex (Fig. 1).

Osteoplastic craniotomy showed a yellow, gelatinous tumor near the midline in the right cerebral hemisphere. It was located just anterior to the precentral gyrus. The tumor, which was only partly removed, was found to be a cellular astrocytoma. The patient failed to rally following the operation and died three days later. Autopsy showed a large tumor occupying large parts of the right fronto-parietal region and the knee of the corpus callosum (Fig. 2).

2. A man, aged sixty, was admitted as a transfer from the State Psychopathic Hospital where he had

been brought because of confusion, loss of memory and helplessness. He had shown progressive mental deterioration over a period of seven years. There was loss of retentive memory, inconstant apraxia, and disorientation. Visual and auditory hallucinatory phenomena and an atypical Parkinsonian syndrome with masking of the face, drooling of saliva, and rigidity of the extremities were noted. An encephalogram was done and 220 c.c. of cerebrospinal fluid were removed and a like amount of air was injected. The films showed the lateral ventricles to be somewhat larger than normal and there was a large amount of air over the cortex. The films were first interpreted as showing cortical atrophy but more critical examination showed that the air over the cortex was subdural rather than subarachnoid,

Fig. 3. Encephalograms showing dilatation of the lateral ventricles with subdural air over the cerebral cortex, an error in technique which is oftentimes confusing.

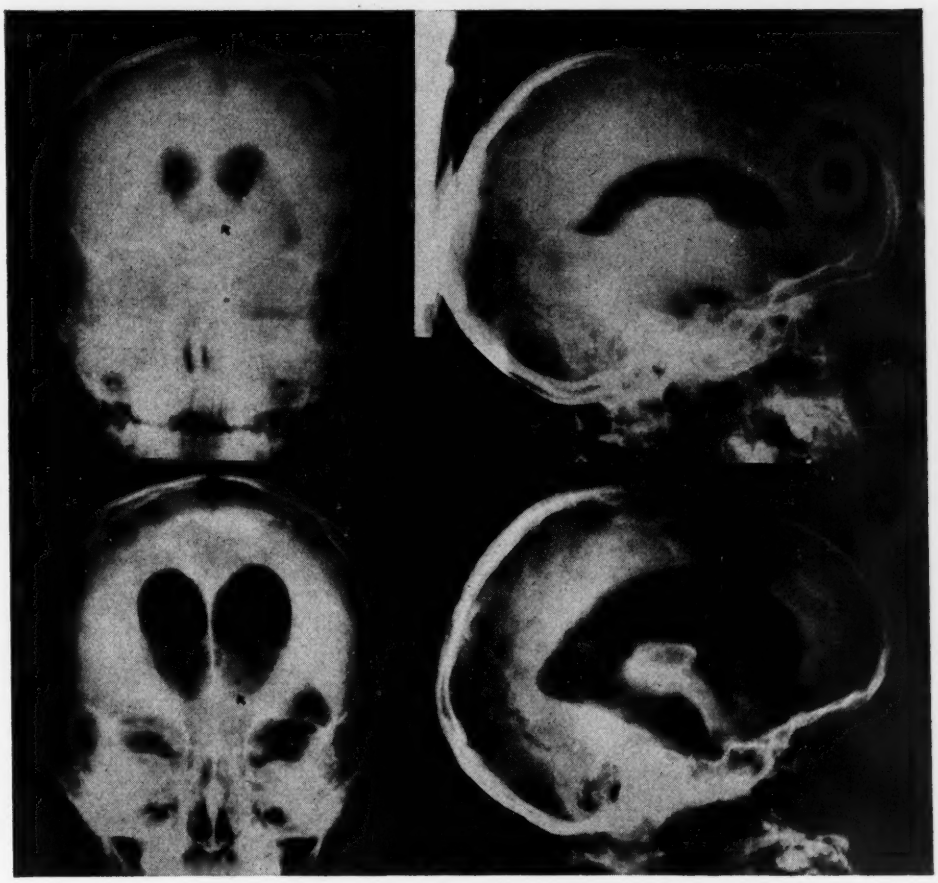

Fig. 4 *(above)*. Encephalograms showing moderate internal hydrocephalus. There is a small amount of air in the superior portion of the third ventricle and the third ventricle appears pushed up and to the left, as indicated by the arrow. *(below)* Ventriculograms done one year later show marked dilatation of the lateral ventricles. There appears to be a mass protruding into the inferior half of the right wall of the third ventricle, as indicated by the arrow.

and because of this, the changes were not considered evidence of atrophy (Fig. 3).

The patient continued to show progressive deterioration, and died sixteen months later. The brain

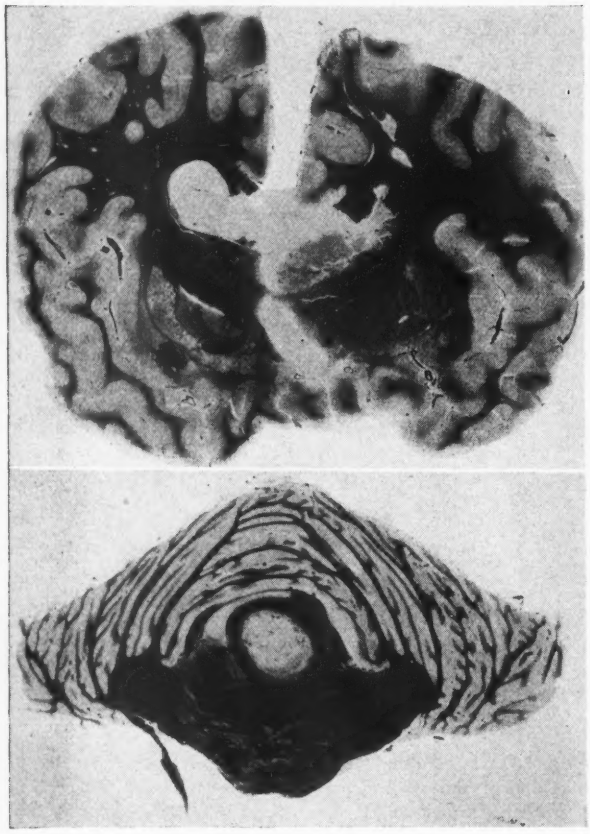

Fig. 5. Section of the brain (Weigert stain) showing the operative defect and tumor tissue in the region of the thalamus and basal ganglia on the right. Section of the pons shows tumor within the fourth ventricle compressing the tegmentum.

at autopsy was found to weigh 1,510 grams. There was no evidence of atrophy, diffuse or cortical. The ventricles were moderately widened. The basal vessels showed some atheromatous changes. Microscopic examination also failed to show evidence of atrophy. A few senile plaques were seen, but there were no Alzheimer fiber changes. The pathological diagnosis was cerebral arteriosclerosis with moderate senile changes.

3. A boy, aged seven, was admitted because of progressive weakness of the left arm and leg. The examination showed no changes aside from hyperactive reflexes on the left and a positive Babinski sign. An encephalogram was interpreted as showing moderate internal hydrocephalus. Both lateral ventricles were moderately dilated, but there was no positive evidence of air in the third ventricle aside from a small globule which appeared to be in the superior portion. The fourth ventricle was faintly outlined by air (Fig. 4). Interpretation of these films was difficult because they were underexposed. However, on the basis of these findings a lesion in the neighborhood of the third ventricle should have been suspected, but no diagnosis was made. The patient's symptoms increased, the weakness became more marked, and he developed headaches. When readmitted he showed limitation of extraocular movements in all directions. There was papilledema of nearly two diopters with minute linear hemorrhages. In addition to the weakness on the left there was lack of coördination of this side of the body. Because of the signs of increased intracranial pressure a ventriculogram was done. There was gross dilatation of the lateral ventricles. A definite indentation in the inferior half of the right lateral wall of the third ventricle gave the appearance of a mass protruding into the ventricle. There was no air in the fourth ventricle or aqueduct (Fig. 4). Osteoplastic craniotomy showed a neoplasm involving the inferior portion of the right thalamus. The tumor could only be partly removed. The patient died two days later. Autopsy showed the tumor to extend anteriorly into the basal ganglia and posteriorly to the midbrain and pons. It compressed the aqueduct, and on the right the corpora quadrigemina, red nucleus, and substantia nigra were completely destroyed. Portions of the pulvinar and caudate nucleus were also invaded. Histologically the tumor was a fibrillary astrocytoma (Fig. 5).

Conclusions

Encephalography may be considered an important measure in the diagnosis of intracranial lesions. By increasing our knowledge of normal and abnormal intracranial structures as demonstrated by encephalograms, we are becoming able to differentiate more accurately various pathological processes. It is becoming possible to make an earlier diagnosis of intracranial neoplasms, and to differentiate them from infectious, degenerative, and vascular processes. We are becoming able to recognize minimal changes in brain structure that were formerly undiagnosed or were misinterpreted. Extensive experience is of the utmost importance in the interpretation of encephalographic films, and that it is easily possible to misinterpret them is evidenced by our second case which was first believed to show evidence of cortical atrophy but was later correctly interpreted. That we should be able to make earlier diagnoses is demonstrated in our third case where encephalography showed changes in the contour of the third ventricle which were not properly interpreted until a year later when the process, then far advanced, was proven by a ventriculogram.

References

1. Bingel, A.: Zur Technik der intralumbalen Lufteinblasung, inbesondere zum Zwecke der "Enzephalographie." Deutsche med. Wchnschr., 47:1492, (Dec. 8) 1921.
2. Dandy, W. E.: Ventriculography following the injection of air into the cerebral ventricles. Ann. Surg., 68:5, (July) 1918.
3. Dandy, W. E.: Röntgenography of the brain after the injection of air into the spinal canal. Ann. Surg., 70:397, (October) 1919.
4. Davidoff, L. M., and Dyke, C. G.: The demonstration of normal cerebral structures by means of encephalography. III. The cerebral convolutions and sulci. Bull. Neurol. Inst. New York, 3:147, (June) 1933.
5. Davidoff, L. M., and Dyke, C. G.: The demonstration of normal cerebral structures by means of en-

cephalography. V. The ventricles, interventricular foramina, and aqueduct of sylvius. Bull. Neurol. Inst. New York, 4:91, (March) 1935.
6. Dyke, C. G., and Davidoff, L. M.: The demonstration of normal cerebral structures by means of encephalography. IV. The subarachnoid cisterns and their contents. Bull. Neurol. Inst. New York, 3:418, (March) 1934.
7. Dyke, C. G., and Davidoff, L. M.: Recent advances in encephalography. Radiology, 22:461, (April) 1934.
8. Pancoast, H. K., and Fay, Temple: Encephalography: Roentgenological and clinical considerations for its use. Am. J. Roentgenol., 21:421, (May) 1929.
9. Torkildsen, A., and Penfield, W.: Ventriculographic interpretation. Arch. Neurol. & Psychiat., 30:1011, (November) 1933.
10. Wideröe, S.: Über die diagnostische Bedeutung der intraspinalen Luftinjektionen bei Rückenmarksleiden, besonders bei Geschwülsten. Zentralbl. f. Chir., 48:394, (March 26) 1921.

A SUCTION APPARATUS

RALPH V. AUGUST, M.D.†
MUSKEGON HEIGHTS, MICHIGAN

The instrument to be described has been found to be both practical and efficient in production of mild negative pressure where such treatment has been found to be indicated. This apparatus consists of a closed system obtained in three 4,000 c.c. bottles with three rubber stoppers, a system of connecting tubes, and two pinch cocks. This is permanently mounted on a supporting stand made of one inch iron pipes and iron ring supports. The over-all height is five feet. It is so constructed that the negative pressure results from water falling approximately two feet six inches.

Method of Operation

Gravity tends to force the passage of water from bottle A to bottle C. This leads to the formation of negative pressure in bottle A. This pressure is transferred through tube N O P to bottle B and from there through tube G D to the patient. A flow of fluid, gas, or both from the patient through tube G D into bottle B allows air from that bottle to pass through tube P O N into bottle A, which in turn allows the water from that container to pass through tube M T K into bottle C. Just prior to passage of all of the water from A to C and while the upper end of tube M is still immersed, tube D is pinched first with the fingers, then with stopcock H, which is at this time transferred from tube Q. Then tube S is pinched with the fingers and bottle C is transferred neck downward to ring 4. Tube S is now released from the fingers only after pinchcock F has been transferred to it from tube R. The water which previously passed from bottle A to bottle C now flows in the opposite direction. After this has been completed the process is reversed. Tube R is pinched, bottle C is transferred back to 3, stopcock F is changed from S to R, stopcock H from D to Q and the production of negative pressure is resumed. These manipulations may be facilitated by application of an added stopcock at T just prior to moving bottle C and keep-

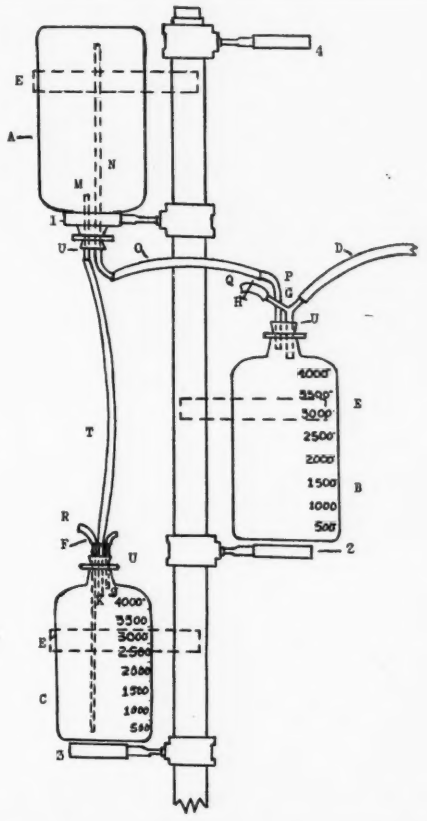

Fig. 1. Diagrammatic sketch of suction apparatus.
1, 2, 3, 4—rings for supporting bottles, 4 is slotted for passage of tubes in bottle C.
A, B, C—4,000 c.c. bottles, empties which formerly contained drugs and obtained from the pharmacy. C bears calibrations in c.c. painted along its wall.
D—rubber tubing which connects apparatus with Levin tube in patient's stomach, rectal tube, or any other type of tube.
E—strap of scrap iron, 1x3/32 inch used to brace each bottle in its place.
F, H—pinchcocks.
G—"Y" tube.
I, J, K, M—Straight brass tubing, ¼ to $\frac{5}{16}$ inch diameter.
N, P—Bent brass tubing, ¼ to $\frac{5}{16}$ inch diameter.
O, Q, R, S, T—rubber tubing.
U—rubber stoppers, kept securely in place by a tie of wire.

†Dr. August graduated with the degree B.S. from the University of Notre Dame in 1930; M.D. from the University of Michigan in 1935. He was interne at Hackley Hospital, Muskegon, Michigan, in 1935-1936. He is now engaged in general practice.

ing it there until after stopcock H has been returned to tube Q.

This procedure is very quickly learned by the nurse, who then has full charge of the apparatus. Material from the patient passes into bottle B, where it remains until 3,500 to 4,000 c.c. have accumulated. At that time tubes O P and G D are disconnected, bottle B is turned upside down into an appropriate reservoir, and is allowed to drain. This bottle may be washed out to remove all odors. Accurate charting of the quantity of fluid removed from the patient may be based on the calibration painted along the wall of bottle B. There is no mixture of material obtained from the patient with the water in bottles A and C because tube G extends further into bottle B than does tube P. Thus there is no clogging of the tubes in this apparatus, and, except for a minute every half to six hours, siphonage is continuous for a number of days. Then it need only be interrupted long enough to empty bottle B, less than five minutes.

This apparatus was made from material costing us less than $2.50. This covered the expense of the iron pipe, tubing, rubber stoppers and pinchcocks. The three bottles were emptied drug containers obtained at no cost from the hospital pharmacy.

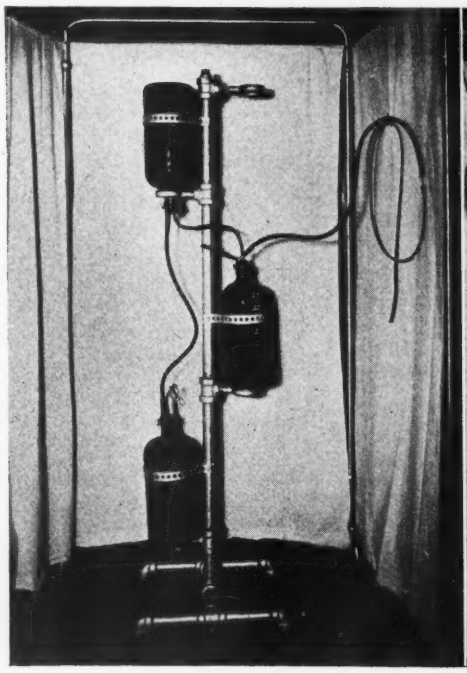

Fig. 2. Apparatus in use.

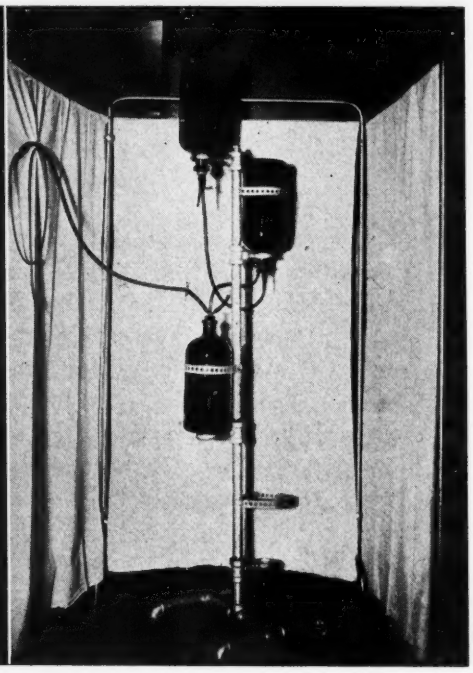

Fig 3. Apparatus as water is being returned from lowermost to uppermost bottle.

We have found this apparatus to be more advantageous than the two-bottle affair generally utilized[2] because this one is compact and always ready for use at a moment's notice, because an accurate record may be kept of the quantity and quality of the material obtained from the patient and because it is simple in operation.

References

1. Goldman, J., and Cohen, A.: Abdominal distention in lobar pneumonia. Ann. Int. Med., 9:1222, (March) 1936.
2. Wangensteen, O. H.: Practical aspects of the therapeutic problem in intestinal obstruction. Int. Clinics, 3:227, series 45, 1935.

PHYSICAL THERAPY IN DERMATOLOGY

LEO ORECKLIN, M.D.†
DETROIT, MICHIGAN

In recent years the use of various forms of physical therapy has become a very important part in the therapeutics of skin disorders. The pathology of dermatoses is such that we can readily observe the changes taking place in them as a result of various therapeutic procedures. In other words, if we apply some form of physical therapy to a skin disorder, we can objectively notice the changes taking place in the skin, whereas in internal disorders this is not so easily accomplished.

Also the various types of dermatoses, whether we are dealing with an inflammatory condition, a new growth, benign or malignant in character, or a degenerative process, or an atrophy, most of these dermatoses respond to some form of physical therapy.

From a historical standpoint physical therapy is one of the oldest forms of treatment that we have. Hippocrates, about 450 B.C., describes the use of massage, hydrotherapy and external heat in the treatment of disease. The introduction of electrotherapy, however, is comparatively recent and dates back to the work of Finsen, in phototherapy, and to the early use of x-rays in therapy, after the discovery of x-rays by Roentgen. Most of this work starts with the early years of the twentieth century.

X-rays and ultra-violet rays are really highly actinic forms of radiant energy which have special effects upon living tissues. From a physical standpoint they are electromagnetic waves of shorter wave length than visible light or infra-red rays.

We will first consider x-rays. The rational indications for roentgenotherapy rest upon the effect of x-rays upon living tissues. Briefly described the gross manifestations of x-rays upon human tissues are first a stimulation of the formation of pigment in the skin, and an erythema or superficial dermatitis, both of which are indistinguishable from the tanning and sunburn produced by sunlight. The maximum effects of x-rays, however, are more intense than the maximum effects of sunlight and if the exposures pass the point of producing a dry red dermatitis, there occurs as the next step a bright red vesicular dermatitis, after this ulceration and finally necrosis of the skin. We can therefore obtain various effects from the x-ray varying from a mild stimulation to marked necrosis.

In the therapeutic applications of x-rays the principle of treatment is to produce a sufficient effect for the purposes of the case, without overstepping the bounds of safety. In skin diseases, except in such conditions as epithelioma, it is always necessary to keep the x-ray reaction well below the point of active dermatitis. "With modern methods of calibration and standardization of x-ray dosage, and the use of automatic electrically controlled timing devices, it is possible for the x-ray therapist to control his dosage with more certainty and with a greater degree of safety. Nevertheless, x-rays should be used with caution and only by a properly trained individual."

We can put the x-ray in the same category as a powerful drug such as morphin or strychnin. If used in proper dosage and for the proper indications we can get good results; otherwise the results are not so favorable.

The changes produced by x-rays upon living tissues may be briefly summarized as follows:

1. They cause atrophy of the appendages of the skin—sebaceous glands, sweat glands, and hair follicles.
2. They have a destructive action upon organisms in living tissues. The bactericidal action of x-rays, however, is not definitely settled. Some authorities claim that there is no direct effect on micro-organisms, but that the environment may be so modified that pathogenic organisms often encounter a less favorable medium upon which to grow.
3. They have a peculiar effect upon the nutrition of living cells, producing in their less intense action a stimulation of the metabolism of the tissues, which, when their effect is greater, may go on to the point of the disorganization of the cells and then destruction.
4. This destructive action upon living cells destroys certain diseased cells, before it destroys the more resistant healthy cells of the stroma.
5. They have an anodyne effect.

From the foregoing effects of x-rays it

†Dr. Orecklin is a graduate of the University of Toronto Medical School, 1923. He served his internship in Providence Hospital, Detroit, 1923-24. He is on the Dermatological Staff of the North End Clinic, Detroit. His practice is limited to Dermatology.

may be deduced that they have possible indications in the following groups of affections.

1. Conditions in which it may be desirable to remove hair.
   (a) Sycosis
   (b) Tinea capitis
   (c) Selected cases of hypertrichosis
2. When it is desired to reduce the activity of the sebaceous glands.
   (a) Seborrhea
   (b) Acne vulgaris
   (c) Comedo
   (d) Acne rosacea
3. When it is desirable to inhibit the activity of the sweat glands.
   (a) Hyperidrosis
   (b) Bromidrosis
   (c) Pompholyx
4. Indirect effect upon bacteria and fungi in dermatophytosis, tuberculosis of skin, acne vulgaris, et cetera.
5. Absorption of inflammatory exudates in such dermatoses as eczema, psoriasis and lichen planus.
6. Destructive effect on new growing radio-sensitive cells, in epithelioma, rodent ulcer, verrucæ, sarcomata.
7. The anodyne effect comes into play in the treatment of pruritic dermatoses, such as pruritus ani, pruritus scroti, and pruritus vulvæ.

From the above therapeutic indications we can see that the field of application for x-ray in dermatology is very extensive. As Pusey states, "It is in fact hardly too much to state that roentgenotherapy is the most widely useful addition to the treatment of skin diseases that has been made."

There are over eighty cutaneous affections that are more or less amenable to x-ray. It is not possible in a discussion of this type to go into further detail, but I merely wish to enumerate some of the skin disorders in which x-ray is most commonly used and in which it gives the best results. Among these are acne vulgaris, epidermophytosis, pruritus ani and vulvæ, neurodermatitis, onychomycosis, and epithelioma.

Radium is a radio-active metal, which emits Alpha, Beta and Gamma rays. The Gamma rays are of primary therapeutic value in dermatology. They are electromagnetic waves of extremely short wave length and have a biologic action similar to x-rays. Radium, therefore, has therapeutic indications similar to x-rays. It is particularly useful in cavities of the body where it can be introduced more effectively and efficiently than x-rays.

On the surface of the skin radium is indicated in many types of cancer of skin, in precancerous lesions, vascular nevi, keloids, keratoses, verrucæ, keratodermas, leukoplakia and kraurosis vulvæ. Special applicators are designed for the therapeutic application of radium.

Now let us consider ultra-violet. Ultra-violet rays when applied to the skin produce an erythema, several hours after the exposure. This erythema is similar to a sunburn, and varies in intensity, depending upon the duration of the exposure and the distance from the skin. In dermatology the ultra-violet is not used as frequently as it used to be, because its therapeutic effect on the skin is limited. Finsen first introduced ultra-violet in the treatment of lupus vulgaris, that is, a form of tuberculosis of the skin, and it still is a standard form of treatment for lupus. Some institutions also use the ultra-violet in hyperintensive doses in the treatment of erysipelas.

In acne vulgaris ultra-violet merely produces a redness and peeling of the skin, but there is no permanent improvement comparable to the results of x-ray therapy. In alopecia areata and generalized alopecia the ultra-violet has a stimulating effect upon the scalp. In acute eczemas and acute dermatitis the ultra-violet is contra-indicated, because it causes further hyperemia when the skin is already inflamed. The Goeckerman treatment of psoriasis consists of the use of ultra-violet rays in conjunction with crude coal tar ointment.

For their tonic effect ultra-violet rays are very beneficial and thus may indirectly be of value in certain dermatoses, where the patient needs tonic stimulation.

We will now consider electrosurgery, in dermatology, as generated by a high-frequency diathermy machine.

In electrosurgery we recognize three types of current.

1. *Uniterminal or Monopolar Current.*—With this current we produce electrodesiccation. It produces a dehydration or drying out or mummifying of the tissues. The lesion to be treated such as a mole or a wart may be sparked, or the needle may touch the lesion, or it may be introduced into the lesion, depending upon how much destruction we wish to produce. A desiccated crust is usually left at base of lesion as a protective covering.
2. *Biterminal Current.*—Here we have an active electrode and passive body electrode. With this type of current we produce electrocoagulation. It results in the formation of a coagulum in the tissues by boiling them in

their own juices. It produces more destruction than electrodesiccation.

3. *Cutting Current or Acusection or Endothermy.* —It is a special type of current, biterminal in character, and by using the proper electrodes we get a cutting effect with a minimum amount of tissue destruction, and the blood vessels are seared as they are cut, so that there is no bleeding. It may be referred to as bloodless surgery and healing takes place by first intention. This current is ideal in removing malignancies of tongue or breasts or of other organs. This type of current may also be used for removing a biopsy in suspected carcinoma of cervix.

Electrosurgery is indicated in the removal of warts—either the verruca vulgaris or plantar wart—moles, especially on the face and exposed parts of body, seborrheic keratoses, and epithelioma, especially the basal cell epithelioma.

In removing any lesion on the face our chief aim is to get a good cosmetic result. The surgeon may remove a fleshy mole on the face, with the knife, introduce a couple of sutures, and obtain a good surgical result. From the cosmetic standpoint, however, the resulting scar may look as bad, if not worse than the original lesion. By using electrodesiccation there is no bleeding, no sutures are required, and there is healing under a scab, so that there is a minimum of scar formation and we get a good cosmetic result. Of course, local anesthesia is used in connection with electrosurgery.

Another form of physical therapy used in dermatology is electrolysis. It is used primarily for the removal of superfluous hair. It depends for its action on a battery or a galvanic current. The active electrode is the negative pole of the battery, and consists of a very fine needle, which is introduced in the hair follicle, causing a very mild caustic effect by the liberation of caustic alkali, resulting in the destruction of the hair papilla or hair root. Hydrogen is also liberated at the negative pole and we can see little bubbles of hydrogen gas forming at the hair root. It takes fifty to sixty seconds to destroy each individual hair. By employing several needles or multiple electrolysis we can work on five to six hairs at one time. This work has been relegated to the beauty operator, but it really belongs to the realm of dermatology.

By means of electrolysis we can also destroy the telangiectatic vessels which occur in acne rosacea and in the spider nevus. Hairy nevi can be successfully removed with electrolysis, but the fleshy or pigmented mole is best treated by electrodesiccation.

Hemangiomata or vascular nevi, especially the so-called strawberry marks, which project from the surface of the skin, are treated successfully with carbon dioxide snow. A pencil of carbon dioxide snow the shape of the nevus is applied to the lesion with moderate pressure for fifteen to forty seconds, depending on location and size of nevus. The lesion becomes frozen and blanches, but it thaws out in a couple of minutes and a blister forms in several hours, which ruptures later and a scab forms. In one or two weeks the scab falls off, reducing the size of the hemangioma. Applications are repeated at monthly intervals until the nevus is level with the skin, and it has lost its red color. About three or four applications are usually required, and the cosmetic results are very good. These hemangiomas should be treated during the first six months of life.

In the last few years hyperpyrexia has been used in the treatment of certain chronic dermatoses such as generalized psoriasis, eczema and dermatitis herpetiformis. Artificially induced fever, of course, has been used successfully for a long time in neurosyphilis, and its use in dermatoses is comparatively recent.

Some spectacular results have been reported in the literature following the use of hyperpyrexia in these chronic dermatoses. For example, a case of generalized psoriasis cleared up following one treatment, and it is well known how resistant psoriasis can be. Similar results have been obtained in other dermatoses. Due to the fact that hyperpyrexia has been so recently introduced in dermatology we cannot as yet estimate its full value. Special cabinets are used for the induction of the artificial fever.

In this paper I have given you an outline of the various modalities that we use in the treatment of skin disorders. We have mentioned x-rays, radium, ultra-violet, electrosurgery, electrolysis, hyperpyrexia and refrigeration. This will give us some conception of the importance of physical therapy in dermatology.

References

Andrews, G. C.: Diseases of the Skin.
MacKee, George M.: X-rays and Radium in the Treatment of Diseases of the Skin.
Pusey, W. A.: Diseases of the Skin.

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PUBLICATION COMMITTEE

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Editor
J. H. DEMPSTER, M.A., M.D.
5761 Stanton Avenue, Detroit, Michigan

Medical Secretary
L. FERNALD FOSTER, M.D.
Bay City, Michigan

Business Manager
WM. J. BURNS, LL.B.
2642 University Avenue, St. Paul, Minnesota
or
2020 Olds Tower, Lansing, Michigan

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"Every man owes some of his time to the upbuilding of the profession to which he belongs."
—THEODORE ROOSEVELT.

EDITORIAL

AN IMPORTANT HEALTH MEASURE

THE trend in institutions teaching the healing art has been towards a very marked reduction of their number. Schools teaching regular medicine have decreased in number from 162, in 1906, to 76, in 1932. In 1920, there were thirteen osteopathic schools in the United States; in 1927, eight. In 1900, there were 79 colleges teaching chiropractic. Seven years later, the number was reduced to forty. From 1920 to 1927, the number of institutions teaching naturopathy was reduced from 20 to 12. Of optometry during the same period the reduction was from 18 to 8. This decrease has been, for the most part, on the principle of the survival of the fittest. The proprietary institution, of course, suffers in favor of the endowed or state owned college. With the advances in the medical and allied sciences, medical education has become a costly matter which it is impossible to finance by students' fees alone, which at one time constituted the sole support of the proprietary school. The body of medical knowledge has become so great that the untrained mind cannot begin to grasp it. During the period mentioned, in medicine, there has been a tendency towards higher standards. not only of professional, but likewise of pre-professional education. Thirty years ago, the standard for admission to a medical college consisted of not more than a high school education or its equivalent which was not scrutinized any too closely.

* * *

It is doubtful at the present time if any of the applicants for the study of medicine or dentistry have had as few as two years in college, after a full high school course—not its equivalent. A very large percentage in this state have secured a college degree, usually a B.A. or B.S., before entering the study of medicine. According to the educational number of the *Journal of the American Medical Association* (August 29), the entire graduating class of the Wayne University Medical School had college degrees. Of the University of Michigan Medical School of 116 graduates, 90 held other degrees. All this is mentioned to show the tendency towards a greater thoroughness and keener selection in the matter of medical students.

* * *

At the next session of the Michigan legislature will be introduced a bill known as the Basic Science Act, the purpose of which is to elevate the standard of training for all who would seek to practice the healing art. It is axiomatic that the more thorough a person's training before he enters upon any course of study, whether it be medicine, law or engineering, the more he will get from his professional course. It is according to an old law, to him who hath, to him shall be given. In other words, there are certain subjects as physiology, chemistry and anatomy, pathology and bacteriology as well as public health and hygiene which everyone should know if he essays to treat the sick at all. This is the irreducible minimum of medical knowledge. This is clearly obvious to any physician or dentist. A thorough training in these subjects should make a better doctor or a better osteopath, chiropractor or naturopath, or what have you, than he could possibly be without this knowledge. These subjects are to be taught in regular institutions recognized by higher educational departments of the state, and, since they are purely academic and not clinical or practical subjects in connection with the healing art, the examiners will be teachers who are not, in any sense, engaged in the actual practice of any system of healing. There is no attempt to attack any system of healing. The cults have their own examining and licensing boards. This condition is accepted. Public policy, however, demands certain requirements in

the interest of public health. A chiropractor or a naturopath called to see a sick child must be able to recognize such infectious diseases as scarlet fever or diphtheria. Hence hygiene and public health. Anyone licensed by whatever law to treat the sick must be able to recognize smallpox or typhoid and to take proper procedures for quarantine. The interests of the health of the people demand this much. There might be some excuse for laxity in this before the cults were granted licensing power. Since they have been legalized, a greater responsibility rests upon the legislature to see that they are progressive and alive to the public interests. And here the long range view is all-important. Those who enter upon the study of medicine and the non-medical modes of practice should possess the minimum qualifications aimed at in this, the most far reaching and effective public health measure of over three decades.

* * *

It should be understood clearly that the Basic Science Law is not retroactive. It does not and can not affect the standards of any physician or dentist or osteopath or chiropractor, now licensed by the various licensing bodies of the state. This cannot be made too plain. It is a movement, the object of which is to improve the healer of the future, no matter what school he elects to attend. Since it is in the interests of existing practitioners of all schools or cults to maintain high standards, there can be no reasonable opposition to the passage of this bill. Similar laws have been enacted and are working satisfactorily in eleven states of the Union. In some of these states, they have been actively supported by osteopathic practitioners who are looking towards the future. The Basic Science Law is a measure in the interest of public and private health of the future. It affects the welfare of the regular practitioner of medicine even less than it does the public. When doctors have illness in their families, they know where to turn to get the best and the most satisfactory medical care. As a rule, they have been able to choose wisely. Their intimate knowledge of medicine as well as their intimate acquaintance with their confreres enables them to choose medical care and to choose it wisely.

* * *

While the medical profession do not wish to pose as altruists, they feel that since they are licensed by the state to practice, the license is a trust which must be exercised in the public interest, the same as a qualified engineer feels it his duty to advise in matters of sanitation. While the adoption of the Basic Science Law might not be productive of immediate results, its value as a health measure for the future cannot be overestimated.

TAXATION

THIS JOURNAL has avoided taking sides in a political sense, and will probably continue in this policy. There are some things, however, that appeal to the doctor as a citizen, if not in his professional capacity, and one of these is taxation. There is no denying the necessity of taxes if we are to have government at all. Everyone must pay willingly his share. However, good government need not be excessively expensive government. A movement is on foot in this state to abolish the tax on real property and to institute a state income tax. This is wholly bad from the doctor's point of view. It is said, on good authority, that approximately only 2 per cent of the population of the United States pay income tax; that means that 98 per cent partake of the benefits of government, which they do not support directly from their income. To abolish taxes on real property and substitute a state income tax would place an extra burden on those already meeting such a tax. Many people never determine, accurately, their incomes. For instance, what the urban resident works for and pays for directly out of his income, namely, his food and fuel, and habitation, the majority of gardeners and farmers do not realize as part of their income. An income tax would hit only those who have a definite income either by salary or who are accustomed to an accurate system of book-keeping such as professional persons and those in business are bound to observe.

Taxation should be fair and equable if it were shared by all who exercise the right of suffrage. If all who partook of the benefits of good government shared in the expense of good government, there should be no injustice. The sales tax appears to be a satisfactory tax because it is shared by all and burdensome on none.

To repeat, taxation is a necessity. We must have taxes if we are to have government—municipal, state or national. Let them be equably distributed. This cannot be done by shifting them from one class to another.

THE ANNUAL MEETING

The Seventy-first Annual Meeting of the Michigan State Medical Society has come and has gone. From every point of view, it was one of the most notable annual meetings in the history of the society. The weather was favorable to a large attendance,

H. E. Perry, Newberry
President of the Michigan State Medical Society

For account of Dr. Perry's professional career, see October, 1935, Journal Michigan State Medical Society.

for large numbers came by automobile. Favorable was the weather, also, for the afternoons for golf and for baseball, which claimed the more sedentary members.

The Executive Committee and the Council held sessions on the afternoon of September 20. The House of Delegates met on the 21st and 22nd of September. An innovation that greatly facilitated the transaction of the House of Delegates was the hand-book containing the reports of standing committees, which reports were placed in the hands of the delegates several days before the meeting, which gave the delegates more time for consideration of these reports.

A verbatim report of the deliberations of the House of Delegates will appear in the November number of the Journal of the Michigan State Medical Society.

Among the important items endorsed by the House of Delegates is the Basic Science Law, which has received the major attention of the legislative committee during the past year.

Dr. Henry Cook of Flint was elected President-elect. Dr. Cook has been a member of the council for the past nine years and for the past year he

Henry Cook, Flint
President-elect, Michigan State Medical Society

Paul R. Urmston, M.D., Bay City
Chairman of the Council and Executive Committee of the Council, Michigan State Medical Society

Dr. Urmston graduated from the University of Illinois in 1903. He came to Michigan in December, 1908, and has limited his practice in Bay City since that time to the care of eye, ear, nose and throat diseases. Dr. Urmston has been a member of the Council representing the Tenth District since 1926, having been elected at the meeting at Mackinac Island.

PAST PRESIDENTS OF THE MICHIGAN STATE MEDICAL SOCIETY

Upper row, left to right: Grover C. Penberthy, Detroit (1935-36); George Le Fevre, Muskegon (1933-34); Richard R. Smith, Grand Rapids (1934-35); L. J. Hirschman, Detroit (1927-28); J. D. Brook, Granville (1929-30); J. M. Robb, Detroit (1931-32); J. B. Jackson, Kalamazoo (1926-27); H. E. Randall, Flint (1926-27).

Lower row, left to right: Guy Connor, Detroit (1923-24); C. H. Baker, Bay City (1919-20); A. P. Biddle, Detroit (1916-17); Reuben Petersen, Duxbury, Massachusetts (1914-15); A. M. Hume, Owosso (1918-19); Angus McLean, Detroit (1920-21).

has been chairman of the council and executive committee of the council. Dr. Cook is not only thoroughly familiar with the work and aims of the society but he has very exceptional ability in the way of expressing himself, not only in the councils of the profession, but in the necessary relations with prominent lay members of the state. Dr. H. E. Perry was inducted as president for the year 1936-37. Dr. Perry has had many years of experience in the practice of medicine and is particularly well informed in regard to the medical situation in smaller communities of the state. Dr. Perry has spent one session in the House of Representatives of the state legislature, which will especially qualify him for the presidency. At a noon luncheon during the convention, he outlined his policy and expressed his attitude as opposed to radical change in the personnel of standing committees who were already functioning satisfactorily.

Of the councillors, Dr. H. R. Carstens of Wayne, whose term had expired, was reëlected. Dr. F. T. Andrews of Kalamazoo was elected for the fourth district, and Dr. R. H. Holmes of Muskegon succeeds Dr. Treynor as councillor for the eleventh district; Dr. I. W. Greene of Owosso, the sixth, to succeed Dr. Cook, who was made president-elect, and Dr. Vernon Moore, the fifth. Dr. Paul R. Urmston of Bay City, councillor for the tenth district, was elected chairman of the council and of the executive committee of the council. Drs. H. A. Luce and Thomas K. Gruber of Wayne, J. D. Brook of Kent, and Claude Keyport of Grayling, were elected as delegates to the House of Delegates of the A. M. A. Alternates were elected as follows: Drs. T. E. DeGurse of Marine City, D. S. Gorsline of Battle Creek and R. H. Denham of Grand Rapids.

Dr. C. T. Ekelund, who served as medical secretary during the past year, tendered his resignation and has been succeeded by Dr. L. Fernald Foster of Bay City. Dr. Ekelund was elected secretary of the society a year ago. He has proved himself very efficient and the success of the annual meeting was due in large measure to the efforts of both Dr. Ekelund and Mr. Burns. Dr. Ekelund has decided to devote all his time to his practice. Dr. Foster, as chairman of the Committee on Public Relations, has devoted himself unstintingly to the efforts of the society for the past year. He is a tireless worker. He has a large acquaintanceship among the medical profession of the state.

Dr. Frank E. Reeder of Flint and Dr. Philip A. Riley of Jackson were reëlected speaker and vice speaker of the House of Delegates.

The general sessions of the society opened on the evening of the twenty-second, with an address by Dr. Charles Gordon Heyd, vice president of the A. M. A. Dr. Penberthy acted as chairman.

Following the address of Dr. Heyd, an entertainment was given, consisting of musical numbers, as well as a performance by a magician in the large ballroom of the Book-Cadillac Hotel. This, in turn, was followed by a buffet luncheon. Dr. Martin Hoffman was master of ceremonies on behalf of the hosts, the Wayne County Medical Society.

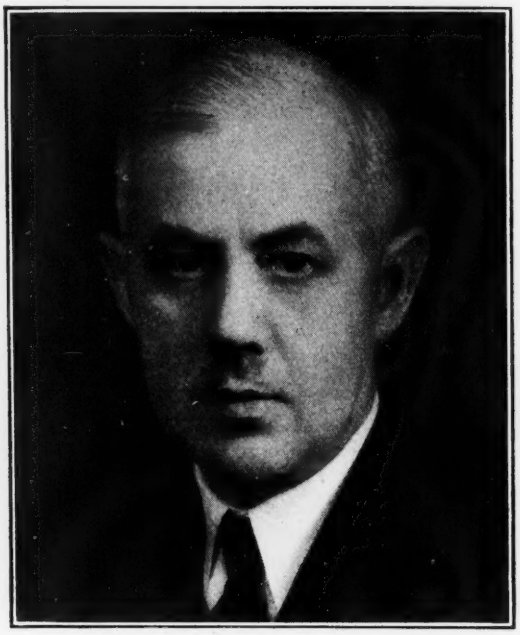
The president's night was held on the 23rd of September, when, preliminary to the evening program, a dinner was given in honor of the living past presidents of the Michigan State Medical Society. Dr. Reuben Petersen, formerly professor of gynecology at the University of Michigan, now a resident of Duxbury, Massachusetts, was the only out-of-state member of the past presidents. He received a hearty welcome to which he responded in a brief address.

The evening's program began with several selections by the Wayne County Doctors' Symphony Orchestra. The presentation was exceedingly well received and much credit goes to the members of the orchestra as well as to their leader, Mr. Georges Miquelle. The musical program was followed by the address of the president, Dr. Grover C. Penberthy, whose address appears in full as the leading paper in this number of the JOURNAL. Then followed the induction into office of the president-elect, Dr. H. E. Perry of Newberry, who made a suitable

response. The new officers were introduced and following this was the presentation of awards to prize-winning scientific exhibitors. The committee appraising the exhibits awarded first prize to Dr. R. A. MacArthur's exhibit on Hematuria; second prize to Dr. R. C. Connelly, Findings in Gastritis; and third prize to the exhibit by Drs. J. C. Kenning, O. A. Brines, J. E. Lofstrum and H. L. Weitz of the Receiving Hospital, Detroit, on Primary Carcinoma of the Lungs.

HENRY R. CARSTENS, M.D., Detroit

Dr. Carstens was reëlected councillor of the First District. He is chairman of the Finance Committee.



I. W. GREENE, M.D., Owosso

Dr. Green was elected councillor of the Sixth District to succeed Dr. Henry Cook, who was made president-elect.

The following exhibitors were awarded honorable mention. Varicose Veins, Dr. Eugene A. Osius, Edwin H. Lauppe and C. N. Weller; The Background of Acute Asthma, Dr. J. Milton Robb; Surgery of Childhood, Drs. Grover C. Penberthy, and C. N. Weller, Children's Hospital; The Present Status in the Treatment of Peptic Ulcer, Dr. David J. Sandweiss.

Following the president's address, the annual Andrew P. Biddle Oration was given by Dr. George Crile of Cleveland. Dr. Crile's address will appear in the November number of this JOURNAL.

A noteworthy feature was the hobby exhibit sponsored by the Woman's Auxiliary to the Michigan State Medical Society under the chairmanship of Mrs. Milton D. Vokes. The exhibit, this year, consisted not only of original work, but also of collections made by members of the society and their wives and families. This is the first hobby exhibit that has been held. It is hoped that it will be continued and will be made a regular feature of the annual meetings. In the future, original work in the broadest sense should be placed on view.

The Michigan branch of the Medical Woman's National Association held its annual meeting in Detroit during the seventy-first annual meeting of the Michigan State Medical Society. Dr. Catherine Bryan of Manistee, Michigan, was elected president to succeed Dr. Bertha Selmon of Battle Creek, and Dr. Mary Margaret Frazer of Detroit will act as secretary-treasurer. The state society was entertained at a luncheon on the 23rd by the Blackwell Society of Detroit. A noon luncheon meeting was addressed by Dr. Mary Thompson Stevens, Dr. Suzanne Sanderson and Dr. Jean Solis of Detroit.

F. T. ANDREWS, M.D., Kalamazoo

Dr. Andrews succeeds Dr. C. E. Boys as councillor of the Fourth District.

Registration of physicians at the seventy-first annual meeting was only a few less than 1,800. This is, by far, the largest registration at an annual meeting of the Michigan State Medical Society.

The date and place of the next annual meeting will be decided upon by the Council and announced after the annual meeting in January, 1937.

DR. L. FERNALD FOSTER, SECRETARY OF THE MICHIGAN STATE MEDICAL ASSOCIATION

Dr. L. Fernald Foster of Bay City succeeds Dr. C. T. Ekelund as secretary of the Michigan State Medical Society. Dr. Foster was born in Philipsburg, New Jersey, in 1891. Following his early education in the schools of his native town, he entered Lafayette College, where he was graduated Bachelor of Philosophy in 1913. He entered upon the study of medicine at the University of Pennsylvania, where he was graduated M.D. in 1918. Dr. Foster served his interneship in the Children's Hospital of Philadelphia, and the Presbyterian Hospital of Philadelphia, where he was also chief resident physician. He also pursued postgraduate work at the University of Pennsylvania.

L. Fernald Foster, Ph.B., M.D.
Secretary of the Michigan State Medical Society

Dr. Foster has practiced in Bay City since 1920, where he has confined his work to pediatrics. In addition to the county, state and national medical societies, he is a member of the American Academy of Pediatrics and he holds the diploma of the national board of examiners. Dr. Foster's non-medical organizations include Kappa Sigma, Alpha Kappa Kappa, Rotary Club, Masons and Elks. He has been secretary-treasurer of Bay County Medical Society since 1920 as well as permanent delegate from Bay County to the House of Delegates of the Michigan State Medical Society.

Dr. Foster, as is well known, has served on numerous committees of the Michigan State Medical Society. He has rendered signal service, the past year, as chairman of the Public Relations Committee. During the past year he has visited seventy-four of the eighty-three counties of the state. During this period, his speedometer has registered 9,910 miles in the interest of the medical profession of the state. Dr. Foster possesses a genius for organization work, perhaps the greatest social medical necessity at the present time. Dr. Foster is married. The children are a daughter, aged fourteen, and a son, eleven years old.

A MOMENT OF MEDICAL HISTORY

INTRAVENOUS INJECTION

By Wilfrid T. Dempster, Sc.D.

ABOUT thirty years after the publication of Harvey's studies on the circulation of blood, some of the founders of the Royal Society of London attempted a study of the effects of various substances injected into the blood stream of animals. True, the injection of medicines had been suggested by Giovanni Colle in 1628. Likewise, Francesco Folli in 1652 had discussed the possible therapeutic value of intravascular injection, but no one had actually tried to add drugs to the circulating blood.

Christopher Wren, astronomy professor at Oxford and famous architect, suggested a technic of injection to Robert Boyle in 1656. With the help of Boyle and Wilkins, Wren began a series of experiments on dogs. A ligature was placed around a vein, the vessel was opened central to the ligature and with a quill having a small bladder attached, fluids were injected intravenously.

When wine or ale, the principal fluids used, were injected into the blood of living dogs, the animals became drunk and stupefied. Experiments of this type were not infrequently tried both at Oxford and at London before a group which became the Royal Society in 1662.

In 1657, a foreign ambassador to the English Court, who was interested in Wren's experiments, turned over to him a malefactor who had been in his employ as a servant. Wren intended to inject vinum emeticum, but when the man fainted of fright, the experiment was discontinued. It was almost a decade later before human injections were actually tried.

Carolus Fracassatus of Pisa made experiments on animals injecting aqua regia and sulphuric acid. The animals died immediately in violent convulsions, and the blood became coagulated. Wepfer found that the injection of air into the vein of an ox resulted in the death of the animal. The same results were obtained by Francesco Redi when he injected air into the veins of dogs, a hare, a sheep and two foxes.

Animal experiments on the infusion of medicines into the blood stream were per-

formed by Johann Daniel Major in 1664. He found that opium made his animals insensate; acids coagulated the blood; sulphurette of antimony caused violent vomiting and death; arsenic and corrosive sublimate injections also resulted in death. Potassium nitrite, however, was introduced without effect. Major pointed out that injections of the jugular vein were more likely to be fatal than injections into other veins. He performed a human injection, but no details are available. Major believed that disease was due to some property of the blood which prevented sweating, a natural curative property of the body. He thought that injection of the proper medicines should produce sweating and the dissipation of the disease.

About the same time, Caspar Schottus found that tincture of gamboge caused diarrhea. Wine, as in the English experiments, caused drunkenness and stupor. Ettmuller injected spirit, water, opium, tartar emetic and other drugs into animals. He believed that injection of medicines should be of wide practical application.

Johann Sigismund Elsholz was also of the opinion that injection should be a real aid in diseases such as scurvy and syphilis which were due to impure or corrupt blood. Elsholz injected water, Spanish wine, opium, purgatives and emetics. His experiments on dogs showed different pharmacological responses for various drugs. The monograph which Elsholz published in 1665 tells of the successful treatment of a syphilitic soldier by an injection of aqua plantaginus. Two other soldiers were treated for fever by the intravenous injection of cardis benedictus, also with success.

In Elsholz's little book, figures demonstrating the technic of injection show that syringes were used for injections as well as the tubes and bladders used in the early experiments of Wren. These latter were figured in Major's publication. It was by this time, a decade after the first injections, that Lower had performed his animal transfusions. Denys likewise had made experiments on the transfusion of blood into humans. Transfusion and intravenous injection came to be considered as mere modifications of one technic. After a decade or more of injection by various enthusiasts, the efficacy of the method began to be questioned. Even Timothy Clarke and Major entertained doubts as to the practical utility of the method. It was obviously dangerous from the standpoint of infection and air embolism, and, as a therapeutic measure, there were no obvious advantages over oral administration.

The bad results of early transfusion due to incompatible bloods, infection and inadequate surgical technic were reflected indiscriminately upon intravenous injection as well. Consequently, the technic of injection fell into disuse. At most, it had been merely a method of introducing drugs by a route other than the oral. The conception that "bad" blood might be rectified by appropriate drugs was not borne out in practice. Pharmacological knowledge of the time was too rudimentary for effective selection of drugs even were they available. Animal experiments ordinarily gave no information beyond the fact that certain drugs caused death; others purged or caused vomiting; and still others were without effect.

In 1683, Matthieu Purmann believed that some cases, such as epilepsy and fever, might respond favorably to the injection treatment. He listed a score of drugs that had been used in intravenous therapy during the preceding twenty-five years. The technic, however, had fallen into disrepute by this time. Only a few men continued to perform injection experiments to the end of the century.

Throughout the eighteenth century, intravenous injection lay dormant as a therapeutic measure. In some places, the practice was illegal. Occasional men, nevertheless, such as Freind, Sprengel, Hermann and Regnaudot, experimented with the method, but there was no widespread interest as formerly. A technic of injection of ammonia for snake bite became of transient interest. Fontana, in 1782, related his experiences with the method. It was somewhat after this time, however, before there was a revival of interest in intravenous injection.

During the second decade of the nineteenth century, the practice of intravenous injection was revived, particularly in France, by Nysten, Orfila and Baron Percy. In the early 1820's, a number of men, among them Magendie, the physiologist, took up the technic. It was used in preference to oral administration as a method of avoiding possible digestive action on drugs and as a way of obtaining speedy absorption of drugs.

The danger of injecting air into veins was reaffirmed by Nysten and by Dieffenbach. Gaspard showed that oily injections were impractical. Daniel conducted experiments on the injection of water, wine, pus and poisons. Magendie, in studying the pharmacological action of upas, nux vomica, prussic acid and ipecacuanha, found in intravenous injection a method to supplement oral administration or the rubbing of poisons into mucous membranes.

Magendie also injected opium into rabid dogs and into normal ones, demonstrating that more drug was required in the diseased animals for narcosis than in normal animals. He attempted the treatment of human cases of hydrophobia by injection, but with little success. Magendie also treated cases of cholera with injections of alcoholic solutions of camphor, but again without success. Coindet treated a girl for hysterical fits by injection of opium. Baron Percy treated cases of tetanus with opium and with stramonium with apparent success.

After little more than a decade of intravenous injection of drugs by various men, the technic was admittedly of minor importance in therapy. It remained, however, as a standard procedure in physiological laboratories where Magendie, Claude Bernard, James Blake and others found it useful. As a therapeutic measure, the injection of drugs was continued in cholera, tetanus and hydrophobia more or less as a last resort till the latter part of the nineteenth century.

In another respect, the injection technic was of some value. The so-called "massive injection" of saline solutions was useful in reviving patients after collapse in cases of malignant cholera. An English physician, Thomas Latta, in 1832, initiated the procedure. On finding in an account of the pathology of cholera by O'Shaughnessy that there was extensive loss from the blood of both water and salt, he thought it feasible to replace these materials by intravenous injection. Latta injected a solution consisting of six drams of muriate of soda, two scruples of subcarbonate of soda and six pints of water. Two or three quarts of solution warmed to 112° F. were injected with a Read's patent syringe. The injection increased the blood volume and elicited stronger respiration, heart beat and pulse. The injection, however, had to be repeated several times within twenty-four hours.

The procedure was immediately advocated by Robert Lewens, Thomas Cragie and others in England. As the technic spread to the continent and America, sodium phosphate and sodium sulphate were sometimes added to the saline solution. The percentage of salt was likewise altered though it usually amounted to 3 per cent or more (a hypertonic fluid). Intravenous injection of saline was limited to cholera and its use depended largely on the presence or absence of cholera epidemics. Though the method was used till the 1850's, it was at last practically abandoned.

Further progress in saline injection came after studies had been made on the physiological activity of the solutions. In 1869, Cohnheim injected frogs with a solution of 0.75 per cent sodium chloride, a fluid used by histologists. All the blood was washed out of the vessels and saline solution was substituted, yet the frogs remained alive two or three days. Ten years later, H. Kronecker and J. Sander bled dogs till the heart beat was weak. A quantity of 0.6 per cent saline solution equal to the blood loss was then injected with an ensuing stronger heart beat. Jolyet and Laffond similarly in 1879 found the same effect in injecting saline into exsanguinated animals.

E. Schwarz in 1881 carried the experiments further. He removed various amounts of blood from dogs and rabbits, each time a definite proportion of the body weight. An equivalent amount of 0.6 per cent saline (slightly alkaline) was then substituted. Dogs lacking as much as two-thirds of their blood could be revived by the procedure. Thus, it was demonstrated that for an animal to survive, a certain minimum amount of blood (i.e., minimum number of red corpuscles) was necessary and that the blood vessels should be adequately filled. Bischoff confirmed Schwarz, and Ott carried the experiments further making cell counts after injection of saline, horse serum, dog serum, whole blood and defibrinated blood.

The demonstration of the efficacy of saline injection as a substitute for blood transfusion in cases of hemorrhage in which there was no great corpuscle loss resulted in the surgical application of saline injection. C. Roux, a Swiss, in 1884, was one of the first to use the technic in clinical cases of anemia, hemorrhage and collapse. During the 1890's, saline injection became increasingly popular with surgeons. Lewis

Pilcher and Mayo Robson among others advocated the method. The Colins transfusion apparatus consisting of a funnel, rubber tubing and canula was popular for infusing saline into veins. Physiological experiments by Bose and Vedel in 1896 demonstrated that 0.7 per cent saline was better than five or six parts per thousand. Ringer's solution was also used.

In Crile's studies in resuscitation of patients in surgical anemia and shock, in 1909, adrenalin was used with salt solution. During the World War, experiments with saline solutions in shock were somewhat disappointing. An initial rise in blood pressure was followed by a serious drop. Saline solutions were found defective because their viscosity was too low and because they contained no colloid with an osmotic pressure. William M. Bayliss in 1916 and 1918 related various physiological experiments on saline solutions to which were added glucose, gelatine, dextrose or gum arabic. The last material, gum arabic, to a concentration of 6 or 7 per cent in 0.9 per cent sodium chloride was found to have the viscosity of the blood and the osmotic properties of its colloids.

Back in the middle nineteenth century, the injection of milk had been suggested as a substitute for blood transfusion by Edward M. Hodder of Toronto. He used milk injection in cases of cholera. Somewhat previously, Donne had injected milk into dogs and rabbits without injury. The method, however, was not used again till 1875 when Joseph Howe injected a tubercular patient with goat's milk but without effect. Three years later, T. Gaillard Thomas was impressed by the chemical and physical similarities between chyle in the thoracic duct and milk. If, he thought, chyle was normally poured into blood as a nutritive and blood forming substance, it was likely that milk injected intravenously would be of equal value in clinical use. He injected cow's milk in several cases, using an infusion apparatus consisting of a funnel and canula connected by rubber tubing. The method was recommended for the treatment of cholera, pernicious anemia and typhoid fever. John Brinton also in 1878 reported successful cases of milk injection. Howe, on the other hand, after experiments with the injection of both cow's and human milk, condemned the practice. Nevertheless, the treatment spread to Europe. Charles Jennings in England was particularly enthusiastic about the method. He believed it would shortly supplant blood transfusion entirely. During the injection of milk, disagreeable symptoms were encountered, and when saline injection became popular about 1885, the technic of milk injection was abandoned.

In addition to saline and milk injection, some activity during the 1870's was devoted to other types of injection therapy. G. B. Halford in 1869 made animal experiments on the injection of quinine and carbolic acid and suggested possible therapeutic uses of the method. He also injected ammonia in snake bite and precipitated a controversy which lasted for several years. In certain types of snake bite, the method seemed of value while in others it had little effect. At any rate, the stimulating effect of ammonia injection was apparent. Accordingly, ammonia was injected as a stimulant in cases of poisoning by chlorodyne, chloroform, alcohol and carbolic acid.

Oré in 1874 injected chloral instead of opium in tetanus, finding that the spasms disappeared and a deep anesthesia was produced. Though the value of chloral in tetanus was not evident in subsequent injection, the hypnotic properties of the drug were used for a year or two in surgical operations. Soon, however, it became evident that the drug was not a true anesthetic and was dangerous.

Intravenous therapy, apart from the injection of fluids for the purpose of maintaining a suitable blood volume, was dependent upon developments in the field of bacteriology and pharmacology. The demonstration of a bacterial cause of a disease allowed a rational approach to intravenous therapy. The absence of such an approach was the factor which was responsible for the lack of significant progress during the seventeenth century and in the early nineteenth century. With the demonstration of a causative organism of disease, two courses were open: either to inhibit the organisms and prevent their multiplication by antiseptic agents or to aid the body to resist the infection. These became the cardinal principles of modern intravenous therapy.

The ordinary method used by bacteriologists was the inoculation of a rabbit or other laboratory animal with some organism and the subsequent injection of a solution of antiseptic hypodermically or intravenously.

The value of treatment in this manner was determined by comparison with the course of disease in an inoculated but untreated animal. Cash in 1884 tried to protect rabbits from anthrax by the hypodermic injection of sodium sulphocarbolate, but with negative results. He obtained better results by injection of dilute mercuric chloride, though in contradiction with results of Koch and Behring. As another method of attempting to control anthrax, Behring in 1887 injected hypodermically silver oxide dissolved in pentamethylendiamin. Toxic doses of drug seemed to limit somewhat the infection in laboratory animals, but more dilute solutions seemed to augment the infection. This latter effect had also been claimed for mercuric chloride in dilute solutions. Washbourn in 1888 used creolin hypodermically for anthrax in experimental animals, but it did not prevent death of animals. During the 1890's and early twentieth century, a number of animal experiments were made with different infectious organisms and with injections of mercuric chloride or other antiseptics.

Bacelli in 1890 treated a group of malaria cases with intravenous injections of quinine maintaining that this method was superior to hypodermic injections. He then turned his attention to injections in syphilis. After a period of animal experimentation with mercuric chloride, Bacelli in 1893 used this drug intravenously in syphilis with encouraging results. Improvement was demonstrated in a number of cases. As the technic became more widespread, controversies as to the value of the method arose. Nevertheless, the technic continued in use. Though the value of mercury in syphilis, like quinine in malaria, was doubtless specific in its action, Bacelli and his followers, impressed with the bactericidal nature of mercuric chloride *in vitro,* believed that the drug would be of value in a number of diseases. It was applied in meningitis, rheumatism and even cattle diseases, but with results of controversial value.

Cyanide of mercury was used in injection in 1896 by Ernest Kane and later used by Maguire. A difficulty with this drug as with most antiseptics was the toxic property of the antiseptic agent when used in sufficient concentration to affect microörganisms. Maguire, after various experiments, in 1901 used dilute formaldehyde solutions in injection, particularly for cases of tuberculosis. This method together with protargol injection, introduced by Ewart (1901) was promising.

Credé of Dresden in 1901 studied the bactericidal properties of metals and developed a technic on animals for injecting silver salts, ordinarily the citrate. This was superseded by a colloidal form of the metal (collargol) which was used in injection treatment of arthritis, rheumatism, phthisis and other conditions.

While antiseptics were used intravenously, attention was likewise given the injection of drugs designed to build up body resistance to disease. After a period of injecting balsam of Peru, Landerer in 1892 prepared an emulsion of the active principle, cinnamic acid. This drug, used in tuberculosis, caused a great increase in polymorphonuclear and eosinophilic leukocytes. Though results were encouraging, the drug was replaced by the more soluble and more easily sterilized sodium cinnamate in 1893. The injection of this drug, known also as hetol, according to a number of users was an efficacious treatment in tuberculosis though animal experiments did not permit the same interpretation. Nevertheless, the method was extensively used in the treatment of tuberculosis during the 1890's and early 1900's.

Preparations of arsenic came into use in intravenous medication with Huxheimer's use of arsenous acid in 1897 for treatment of patients with psoriasis. But the disagreeable symptoms occurring at injection led to abandonment of the method though it seemed efficacious. Sodium cacodylate was introduced by Gautier in 1899. Because of the relatively non-toxic properties of the drug, it seemed a successful method of introducing arsenic into the body. Widal in 1900 found that the number of red blood corpuscles in the blood was rapidly increased by injection of the drug. The practical importance of the drug was considered differently by various users.

Intravenous medication entered a decidedly modern phase with the development of practical methods of chemotherapy by Ehrlich. In 1902, an aromatic compound containing arsenic and known as atoxyl was introduced and was shown by F. Blumenthal to be relatively non-toxic. The next year, Ehrlich and Shiga studied the bactericidal value of the drug *in vitro,* but on obtaining negative results abandoned the

drug. Two years later, Thomas and Breinl adapted atoxyl successfully to the treatment of trypanosome disease. The value of such treatment was demonstrated by Robert Koch, who found a diminution of trypanosomes within a few hours after injection. After the demonstration of the spirochete of syphilis by Schaudinn, atoxyl was used in syphilis therapy. By this time, Ehrlich had resumed his studies on the drug. With the chemist Bertheim, he determined the structure of the compound and set out to modify it chemically with a view of making the drug less toxic, yet certain in its spirillicidal value. Various modifications of atoxyl were made and tested on spirochetal or trypanosomic diseases. In 1906, a compound known as arsacetin was introduced by Ehrlich and tested by Lassar, but this compound was little better than atoxyl. Arsenophenylglycin, known in Ehrlich's series as number 418, received variable reports when tried on tropical trypanosomic diseases. Uhlenhuth and others simultaneously studied various arsenic compounds, atoxylate of mercury, hectine and soamin, but no wholly successful compound for injection appeared. The drug sought for was one which would have a specific effect in inhibiting pathogenic organisms, yet which would be non-toxic to the patient.

In 1909, Bertheim prepared diamidodioxyarsenobenzol which was known as test material "606." Ehrlich and Hata studied this chemical and found it highly successful in animal experiments on trypanosomic disease. Some material supplied to Professor Alt was tried during 1909 on clinical cases of syphilis. This material of Ehrlich and Hata, known as "606," arsphenamin or salvarsan was extensively and successfully used in treatment after 1910. A further improvement came in 1911 with Ehrlich's introduction of neoarsphenamin, test material "914," which was neutral, easier to administer and caused less discomfort.

At first, such substances were injected subcutaneously or intramuscularly, but in a short time, intravenous injection became the standard procedure. For this purpose, a syringe with a sharpened needle was used for puncturing a vein and injection.

The war period and the subsequent 1920's saw a widespread use of chemotherapy which soon spread to include intravenous injection of almost any drug to obtain rapid and certain pharmacological action.

Bedside Teaching: Consideration of the Patient's Emotional Response to Case Discussion

According to Eugen Kahn and Grover F. Powers, New Haven, Conn. (Journal A. M. A., Aug. 29, 1936), the use of the hospital ward and dispensary as the laboratory for the teaching of clinical medicine is a procedure with ancient and approved lineage—a descendant of the master-apprentice relationship which probably antedates formal academic disciplines. In the United States, teaching in the medical schools was for many years largely by lectures and recitations. To Abraham Jacobi (1830-1919), nestor of American pediatrics, great credit is due for early attempts to break away from this method and establish clinical teaching in its laboratory—the bedside. However, it was with the launching of the Johns Hopkins Medical School in 1893 and the impetus given to educational procedures by the example and success of William Osler that clinical clerkships and bedside conferences were established as the sine qua non of clinical instruction. There can be no question of the essential value to the clinical student of teaching at the bedside. There the teacher-physician has the opportunity to observe his patient and convey his observations immediately to his student or apprentice; there the teacher can make his student or apprentice familiar with his methods of examination and the student is able to examine the patient under the direction and control of his teacher. It is quite understandable that this technic would develop differently in the hands of different teachers. Even if the teaching physician understands perfectly his primary responsibility of helping his patient, as a teacher he also has another task; namely, to use his patient as "teaching material" for his students. These responsibilities are not wholly antagonistic, for undoubtedly the student by his examinations and laboratory investigations not only furnishes valuable concrete contributions to the "work-up" of the case but by his questions and comments stimulates his teacher to a more critical and searching appraisal of clinical data. Thus, the presence of a student "on the case" is often an asset. However, this knowledge of disease which the student assists in acquiring and assembling is not always handled in such a way as to bring optimal benefit to the subject. The second responsibility of the clinical teacher, i.e., the use of the patient as teaching material, may quite obviously bring danger to the patient as well as influence harmfully the attitude of the physician-to-be. The authors have had the experience that some clinical teachers, with the best of intentions, are not dealing in the most desirable way with their patients when they are examining them in the presence of students. All manner of highly undesirable remarks and discussions are likely to occur if charts, specimens and roentgenograms are indiscriminately exhibited during bedside teaching. One has to realize that the patients, or at least many patients, are under emotional stress in this situation and only too apt to listen anxiously and to interpret wrongly what they hear. The authors think that it cannot be emphasized enough that the patient offers himself, in a sense, as a sacrifice when he lends himself to bedside teaching and that he is entitled to be dealt with in the gentlest and most considerate way. Whether or not he appears to be a sensitive person does not matter at all. Every patient ought to be treated as if he were sensitive, and every remark that might hurt a patient's sensitivity must needs be avoided if physicians want to carry on and further develop bedside teaching. It is the authors' opinion that the student must be made familiar with the considerate attitude toward a patient that is expected of him at a very early period of training. It is desirable to acquaint the student with this attitude before he goes into his clinical years.

DEPARTMENT OF SOCIETY ACTIVITY

L. FERNALD FOSTER, M.D., Secretary

COUNCIL CHAIRMAN'S COMMUNICATION

Postpayment Plan for the Borderline Group

FOR cases in the borderline group, the Public Relations Committee of your State Society encourages the principle of a postpayment plan, owned and controlled by the county medical society and managed by a full-time man in as many counties as needed, to permit all people in this borderline group to maintain their independence with respect to procuring medical care; the details of each postpayment plan are to be developed to fit into the peculiar needs of every county.

The Executive Committee of The Council, on July 29, 1936, approved the above recommendation of the Public Relations Committee and instructed this integrating unit to recommend the postpayment plan to all county medical societies at once, and to aid in the development of same wherever this assistance is desired.

The postpayment plan, as recommended, is to be used by the physician where the employed patient strikes an economic snag or some difficulty in obtaining necessary medical service. In all plans, the patient should first contact the physician who retains the privilege of making arrangements direct, or through the plan. Advice to the public in all localities should be: Go to your physician when ill, and if it is necessary in your case, you may procure the benefits of a postpayment plan.

The president and secretary of your county medical society received this month an outline of a postpayment plan which is being successfully conducted by a medical society in one of the Michigan counties. This, I hope, will stimulate thought and action toward the establishment of other postpayment plans for the borderline group by many county societies in this state. It is vital to Medicine that you develop an efficient postpayment system promptly.

P. R. URMSTON, M.D.

COUNCIL AND COMMITTEE MEETINGS

1. **July 8, 1936**—Public Relations Committee—Wayne County Medical Society Building, Detroit—6:00 P. M.
2. **August 12, 1936**—Joint meeting of Legislative Committee and Public Relations Committee—Olds Hotel, Lansing—3:00 P. M.
3. **August 14, 1936**—Special Committee to Study Schedules A and B—Wayne County Medical Society Building, Detroit—6:30 P. M.
4. **September 4, 1936**—Subcommittee on Relief Medicine with representatives of other professional groups—Statler Hotel, Detroit—8:00 P. M.
5. **September 4, 1936**—Exhibits Committee—Book-Cadillac Hotel, Detroit—5:30 P. M.
6. **September 6, 1936**—Maternal Health Committee—Olds Hotel, Lansing—10:00 A. M.
7. **September 9, 1936**—Legislative Committee of the Michigan State Medical Society plus Legislative Committee, Michigan Hospital Association—Michigan Union, Ann Arbor—2:00 P. M.
8. **September 10, 1936**—Special Committee to study Schedules A and B—Wayne County Medical Society Building, Detroit—6:30 P. M.
9. **September 13, 1936**—Maternal Health Committee—Olds Hotel, Lansing—10:00 A. M.
10. **September 16, 1936**—Contact Committee with State Health Department on Social Security Act—State Office Building, Lansing—10:00 A. M.
11. **September 17, 1936**—Contact Committee with Michigan Crippled Children Commission—Statler Hotel, Detroit—9:00 A. M.
12. **September 20, 1936**—Annual Meeting of The Council—Book-Cadillac Hotel, Detroit—4:00 P. M.
13. **September 20, 1936**—Subcommittee on Relief Medicine—Book-Cadillac Hotel, Detroit—2:00 P. M.
14. **September 20, 1936**—Committee on Medical Economics—Book-Cadillac Hotel, Detroit—8:00 P. M
15. **September 23, 1936**—Preventive Medicine Committee—Detroit Athletic Club, Detroit—12:30 P. M.
16. **September 23, 1936**—Cancer Committee—Book-Cadillac Hotel, Detroit—6:00 P. M.

MINUTES OF MEETING OF PUBLIC RELATIONS COMMITTEE

July 8, 1936

1. *Roll Call.*—The meeting was called to order by Dr. L. Fernald Foster at 7:55 p. m. in the Wayne County Medical Society Building, Detroit. Those present were Dr. Foster, Bay City; Dr. F. B. Miner, Flint; Dr. F. T. Andrews, Kalamazoo; Dr. R. H. Holmes, Muskegon; and Dr. A. V. Wenger, Grand Rapids. Also present were Dr. Henry Cook, Flint, Chairman of The Council; Dr. P. R. Urmston, Bay City, Councilor; Secretary C. T. Ekelund, Pontiac; Dr. L. C. Harvie, Saginaw; and Drs. J. M. Robb, James H. Dempster, T. K. Gruber, H. A. Luce, L. O. Geib, F. B. Burke, F. H. Purcell, and R. H. Pino, all of Detroit; James A. Bechtel, Acting Executive Secretary of the W.C.M.S., and Executive Secretary Wm. J. Burns. Absent: Dr. E. I. Carr, Lansing; Dr. P. A. Riley, Jackson; Dr. J. J. Walch, Escanaba.

2. *Distribution of Medical Care for the Borderline Group.*—Dr. Foster presented the background leading to the call of this meeting for the purpose of discussing Distribution of Medical Care with particular reference to the borderline group. He spoke of the article in the *A.M.A. Bulletin* treating on this subject (May issue, entitled "The Planning and Organization of Medical Services"). Dr. Cook gave his views on this subject in a written statement; Dr. Robb advised always to have a plan in community service; he stated that industry and banking are just as confused about the future as is medicine. He recommended that medical organization place a statement in the newspaper every two weeks setting forth that the medical profession will meet the financial problem of the borderline patient, and also to inform the public what the medical profession is doing for it. Dr. Robb felt that Dr. Cook's statement should be placed before the public, as well as published in THE JOURNAL.

The subject was further discussed by Secretary C. T. Ekelund who stated that any so-called faulty distribution of medical care is a condition of poverty.

The matter was further elucidated by Drs. Urmston, Dempster, Gruber, Luce, Geib, Burke, Purcell, Harvie, Wenger, Holmes, Andrews, Miner and Pino.

(The problem of the indigent and his medical care had already been referred to the Subcommittee on Relief Medicine, part of the Economics Committee of the M.S.M.S., and was not discussed here.)

The consensus of opinion was that more information to the public and to the profession was necessary, through the Bureau of Information of the M.S.M.S., Speakers' Bureaus of county medical societies and through advertisements in newspapers.

Motion of Drs. Wenger-Andrews that for borderline cases, both adults and children, we encourage the principle of a postpayment plan, owned and controlled by the county medical society and managed by a full-time man in as many counties as possible, to permit all people in this borderline group to remain independent in the matter of procuring medical care; details of each postpayment plan to be developed to fit into the peculiar needs of every county. Motion carried unanimously. This motion was thereupon referred to the Executive Committee of The Council for approval, after which it is to be publicized to the profession and the public through the Bureau of Information. It was understood that a postpayment plan is to be used where the physician and patient have economic difficulty, and that the patient should first contact the physician.

Advice to the public: Go to your physician, and if it is necessary in your case, you may procure the benefits of a postpayment plan from him.

3. *Adjournment.*—The meeting was adjourned at 10:50 p. m., with the Chair expressing thanks to all who had ventured to this meeting with the thermometer registering 105 degrees!

MINUTES OF MEETING OF LIAISON COMMITTEE WITH HOSPITAL ASSOCIATION

July 22, 1936

1. *Roll Call.*—The meeting was called to order by Dr. T. K. Gruber, Chairman, in the Olds Hotel, Lansing, at 7:15 p. m. Present were Dr. Gruber, Eloise; Dr. W. C. Ellet, Benton Harbor; Dr. H. S. Collisi, Grand Rapids; Dr. Henry Cook, Flint, Chairman of The Council; Secretary C. T. Ekelund, Pontiac; Dr. Wm. A. Hyland, Grand Rapids, Treasurer; Dr. Don Morrill, Grand Rapids, President of the M.H.A.; Dr. W. L. Babcock, Detroit, and Dr. John B. Jackson, Kalamazoo, Dr. S. W. Donaldson, Ann Arbor, and Dr. E. R. Witwer, Detroit, representing the Michigan Association of Roentgenologists; and Executive Secretary Wm. J. Burns. Absent: Dr. K. B. Brucker, Lansing; Dr. G. J. Curry, Flint.

2. *Group Hospitalization* was discussed by all present. Dr. Morrill stated that the M.H.A. intends to ask the Legislature for permissive legislation so that the individual counties may develop group hospitalization if desired. He stated the hospitals are encouraging a pay-as-you-go basis. Four hundred hospitals (out of 6,000) stopped operating in the United States during the depression. Dr. Collisi spoke of the study made by the Health Council of Grand Rapids, which brought out these points: All hospitals of the community must embrace the plan; the coöperation of the employer must be obtained; the medical fee must not be included; should it include care of the employe only, or also his family? Should it include nursing care other than regular institutional nursing, or dentistry, or prescriptions, etc.?

Dr. Babcock stated that group hospitalization is a child of the depression; that 46 different plans are being tried, not one like the other; that the Essex Plan (New Jersey) has resolved itself into an industrial plan; that it represents a small percentage of the hospital business—from 3% to 20% (the average being 12.5 per cent); that many local problems must first be solved before a plan can be put into operation; that he is not in favor of the plan for the city of Detroit at the present time as there is no need for it in that city; that the midwife of group hospitalization was the Report of the Committee on the Costs of Medical Care; that group hospitalization will not last—little will be heard of it in from 10 to 20 years.

Dr. Ellet felt that group hospitalization would hit the smaller hospitals very hard.

Motion of Drs. Collisi-Ellet that this Committee recommend to the Legislative Committee and to the Executive Committee of The Council, Michigan State Medical Society, that it offer the services of the Legislative Committee of the Michigan State Medical Society to collaborate with a corresponding committee of the Michigan Hospital Association in considering permissive legislation for a prepayment plan for hospital services, exclusive of medical care, and to report back to the corresponding organizations for the mutual approval or disapproval, before submission to the Legislature for possible enactment. This motion was thoroughly dis-

cussed and changed in several places because of the objections of Dr. Ellet. Finally it was put to a vote and carried unanimously.

3. *Radiologists' Care of Crippled-Afflicted Children.*—The radiologists spoke of their position in connection with afflicted-crippled child laws. Dr. Jackson asked the question: "Does the roentgenologist belong to the hospital or to the medical profession?" Placing the radiologist in Fee Schedule B had caused their depreciation, he stated. Full discussion ensued.

The Chair resolved the group into a Committee of the Whole.

Motion of Drs. Morrill-Babcock that the fee for roentgenologists for the care of afflicted and crippled children be included in Schedule A, on the same basis as medical and surgical fees, for both ambulatory and hospital cases. Motion carried unanimously. Dr. Babcock will present this action to the Detroit Hospital Council for a concurrent motion.

4. *Emergency Service by Residents and Interns* was discussed by the Committee, but no action was taken.

5. *Anesthesia Administration.*—The question of anesthesia administration, as presented by "Hospital Management" was discussed by the Committee. It was felt that the following information should be sent to the editor of "Hospital Management": Most of the larger hospitals of Michigan are committed to the use of nurse anesthetists under the direction and training of a medical or surgical anesthetist, with the approval of the staff.

6. *Adjournment.*—The meeting was adjourned at 10:10 p. m. with the Chair expressing thanks to all for their attendance and advice.

MINUTES OF JOINT MEETING OF EXECUTIVE COMMITTEE OF THE COUNCIL AND THE LEGISLATIVE COMMITTEE

July 29, 1936

1. *Roll Call.*—The meeting was called to order by Dr. Henry Cook, Chairman, in the Statler Hotel, Detroit, at 3:07 p. m. The following were present: Dr. Cook of Flint, Dr. A. S. Brunk and Dr. H. R. Carstens of Detroit, Dr. T. F. Heavenrich of Port Huron, and Dr. Frank E. Reeder of Flint. Also present: President Grover C. Penberthy, Detroit; Secretary C. T. Ekelund, Pontiac; and Treasurer Wm. A. Hyland, Grand Rapids. Councilor H. H. Cummings, Ann Arbor; (Chairman of the Legislative Committee); Councilor P. R. Urmston, Bay City; members of the Legislative Committee; Dr. F. B. Burke and Dr. L. J. Gariepy of Detroit; Dr. L. G. Christian, Lansing; Dr. C. F. Snapp, Grand Rapids; (and Dr. Cook); Dr. L. Fernald Foster, Bay City; Dr. J. M. Robb, Detroit; Dr. T. K. Gruber, Eloise; President of the WCMS; and Executive Secretary Wm. J. Burns. Absent: Dr. C. E. Boys, Kalamazoo; Dr. H. E. Perry, Newberry.

2. *Minutes.*—The minutes of the Executive Committee of The Council, meeting of July 1, 1936, were read and approved; the minutes of the Legislative Committee, meeting of June 24, 1936, were read and approved.

3. *Tuberculosis Control Service.*—This subject was discussed and the recent action of the Preventive Medicine Committee and the PRC at their joint meeting of June 10 was reviewed. Motion of Drs. Carstens-Heavenrich that we communicate with the State Commissioner of Health to the effect that the proposed program on tuberculosis control service is assured of warm coöperation from the Michigan State Medical Society and we are waiting to hear from him relative to what further steps the Michigan State Medical Society can take to aid him in this work. Carried unanimously.

Dr. Cook turned the Chair over to Dr. Cummings, Chairman of the Legislative Committee, at this point.

4. *Basic Science Bill.*—This proposed legislation was studied section by section.

Dr. Cook re-assumed the Chair at this point.

5. *Legislative Bulletins.*—This matter was referred to the Legislative Committee to do with same as it deems advisable, motion of Drs. Heavenrich-Carstens. Carried unanimously.

6. *Annual Report of Legislative Committee.*—The various items referred to the Legislative Committee by the 1935 House of Delegates were discussed:

(a) The integration of Medicine. The Committee is continuing its work on this matter.

(b) The unauthorized practice of medicine. Dr. Burke's report on this subject will be part of the Annual Report of the Legislative Committee.

(c) Revision of Medical Practice Act. Proposed amendments were presented, and on motion of Drs. Carstens-Reeder were referred to the Legislative Committee for study.

Recess for dinner—6:45 to 8:15 p. m.

(d) Michigan Health Council, or Allied Health Group. Reference was made to discussion of this subject before the 1935 House of Delegates (page 729 of November, 1935 JOURNAL). The integration program of the University of Michigan at Marquette, Michigan, on August 19, was also discussed. Motion of Drs. Heavenrich-Brunk that the President, the Chairman of The Council, and the Chairman of the Public Relations Committee attend this Marquette Conference, to represent the Michigan State Medical Society as a committee, and to discuss the matter of integration with Dr. J. D. Bruce, V. P. of the University of Michigan. Carried unanimously.

7. *Group Hospitalization.*—Dr. Gruber reported on meeting of the Liaison Committee with Michigan Hospital Association on July 22. The motion of the Liaison Committee "that this Committee recommend to the Legislative Committee and to the Executive Committee of The Council, Michigan State Medical Society, that it offer the services of the Legislative Committee of the Michigan State Medical Society to collaborate with a corresponding committee of the Michigan Hospital Association in considering permissive legislation for a prepayment plan for hospital services, exclusive of medical care, and to report back to the corresponding organization for the mutual approval or disapproval, before submission to the Legislature for possible enactment," was thoroughly discussed. Motion of Drs. Heavenrich-Cummings that the Legislative Committee of the Michigan State Medical Society be authorized to collaborate as per the recommendation of the Liaison Committee. Carried unanimously.

8. *Monthly Membership Report.*—

	1936	*1935*
Membership To July 20. (From 1/1 to 7/20, incl.)	3,481	3,407
(This includes Wayne County)	1,283	1,288
Membership To July 20 (From 7/1 to 7/20, incl.)	84	88
(This includes Wayne County)	38	70

9. *Advertising Sales.*—

Sales for July, 1936	$671.42
The cost of printing JOURNAL for July, 1936	652.98

Bills payable for the month were presented in detail. Motion of Drs. Carstens-Brunk that the Re-

ports and bills payable, as presented, be approved and be ordered paid. Carried unanimously.

10. *Alleged unethical practice of two physicians.*—The report of the committee will be presented at the next meeting of the Executive Committee.

11. *Admission Policy at Uuniversity of Michigan Hospital.* The report of the committee (Drs. Carstens and Penberthy) will be presented to the Executive Committee at a later date.

12 (a). *Advertising Annual Meeting.*—The committee (Drs. Brunk, Penberthy, Carstens) reported through its Chairman, Dr. Brunk, recommending that 4,000 copies of "Detroit Publicity" be obtained through the Detroit Convention and Tourist Bureau (The Committee had been given power to act by the Executive Committee on July 1, 1936).

(b) *Report on Annual Meeting Plans.*—Secretary Ekelund reported that 84 speakers would be on the program at the Detroit meeting, which would also include 52 scientific exhibits and 70 technical exhibits, and a Hobby Show with a special printed catalogue developed by the Woman's Auxiliary. The entire fourth and fifth floors of the Book-Cadillac would be used for this display.

The Official Program would be very descriptive and illustrative, containing some 36 pages. Motion of Drs. Heavenrich-Reeder that the Official Program be sent to each member of the Michigan State Medical Society before the Annual Meeting. Carried unanimously.

Dr. Ekelund suggested a Handbook for Delegates, similar to that prepared by the American Medical Association and certain state societies containing the Annual Reports, lists of Delegates, Officers, Committees, constitution and by-laws, and proposed changes in said constitution and By-laws and all other matter pertinent to the meeting of the House of Delegates. These reprints of the material (to appear in THE JOURNAL) could be sent to officers and delegates thirty days before the Annual Meeting, in compliance with the rules of the Michigan State Medical Society, and extra copies (about 250 in all) could be run off for interested members. This would be a saving over the plan of running all this copy in the Official Program. Motion of Drs. Carstens-Brunk that this plan of a Handbook for the Delegates be approved. Carried unanimously.

The item in the Official Program relative to a registration fee of $5.00 to non-members whose names appear in the American Medical Directory and who desire to register at the Annual Meeting of the Michigan State Medical Society was approved.

13. *Postpayment plan for the borderline group.*—Report was given by Dr. Foster on meeting of PRC of July 8, 1936, at which the following motion was adopted: "For borderline cases, both adults and children, the PRC encourages the principle of a postpayment plan, owned and controlled by the county medical society and managed by a full-time man in as many counties as possible, to permit all people in this borderline group to pay their own way for medical care; details of each postpayment plan to be developed to fit into the peculiar needs of every county." Full discussion. Motion of Drs. Brunk-Reeder that this principle be approved. Carried unanimously.

14. *Fee Schedules A-B.*—Report was given on action of Augmented State Administrative Board on July 21, 1936, in reinstating the fee schedules for medical and surgical care of afflicted and crippled children. Dr. Cook spoke of the study and possible revision of fee schedules A & B, including the radiologists' fees. Motion of Drs. Carstens-Heavenrich that the chairman of The Council be authorized to appoint a committee for this purpose, and to take care of the radiologists' fees, if possible, and to report back to the Executive Committee of The Council at its next meeting. Carried unanimously.

15. *Ohio State Annual Meeting.*—An invitation from the Ohio State Medical Association to attend its Annual Meeting in Cleveland next October was read to the Executive Committee.

16. *Secretaries Conference.*—The Chairman of the Secretaries, Dr. Foster, outlined the program of the Secretaries Conference of September 23, and requested approval of cost of dinners for the officers of the Michigan State Medical Society, the 53 secretaries of the county medical societies and the seven invited speakers, and also the cost of printing dinner tickets. Motion of Drs. Heavenrich-Brunk that the cost of the dinners and tickets as outlined be paid by the Michigan State Medical Society. Carried unanimouslv.

17. *Allegan County Medical Society.*—The signed application of all physicians of Allegan County, except four, for a charter as the "Allegan County Medical Society" was presented. Motion of Drs. Heavenrich-Carstens that a charter be granted the Allegan County Medical Society. Carried unanimously.

18. *President's Dinner.*—Dr. Penberthy presented his plans for the President's Dinner at the Annual Meeting of the Michigan State Medical Society, to honor the Past-presidents of the Society. Members of the Executive Committee felt that this dinner should not be the responsibility of the President, but that the State Society should assume the expenses thereof. This is done by other state medical societies. Motion of Drs. Brunk-Carstens that the Michigan State Medical Society pay the expenses of the President's Dinner at which the Past-presidents of the Society are honored. Carried unanimously.

19. *Resignation of Councilor Hafford.*—The resignation of Councilor George C. Hafford of the Third District, due to ill health, to take effect after the Annual Meeting, was read.

20. *Appropriation for Goitre Committee.*—Request of Dr. D. M. Cowie for appropriation to continue tabulation of findings of Iodized Salt Committee was presented. Motion of Drs. Heavenrich-Reeder that this request be laid on the table, pending estimation of amount necessary. Carried unanimously.

21. (a) *Michigan State Medical Society Representatives to Joint Committee.*—The matter of paying the travel expenses for Michigan State Medical Society representatives to the Joint Committee on Public Health Education was discussed. Motion of Drs. Heavenrich-Carstens that the expenses of all Michigan State Medical Society representatives to the Joint Committee be allowed. Carried unanimously.

(b) *Expenses of PRC Meeting of July 8.* The expenses of members of the PRC in attending meeting of July 8, 1936, were allowed, on motion of Drs. Brunk-Carstens, and carried unanimously.

(c) *Request of Maternal Health Committee.* The request for special envelopes, with the address of the Chairman in Grand Rapids thereon instead of the address of the executive office of the Michigan State Medical Society in Lansing, was presented to the Executive Committee and discussed. Inasmuch as this Committee is conducting a survey in the state and these envelopes will be used mainly to return tabulations to the Committee Chairman from the various county medical societies, the Executive Committee approved the request, on motion of Drs. Heavenrich-Reeder, and carried unanimously.

22. *Miscellaneous matters.*—

(a) The matter of offering help to county medical societies which desire speakers at their meetings

was approved. Assistance will be given through the PRC.

(b) Correspondence from John A. McNamara, director of the Cleveland Group Hospital Association, was presented and discussed. Motion of Drs. Heavenrich-Reeder that this matter be left to President Penberthy to answer in any manner he sees fit. Carried unanimously.

(c) The Executive Secretary was instructed to request all county medical societies, which have not reported to date, to send dates of their regular and annual meetings to the Michigan State Medical Society Executive Office.

23. *Adjournment.*—The meeting was adiourned at 11:40 p. m. after the Chair had thanked all for their attendance and advice.

MINUTES OF JOINT MEETING OF PUBLIC RELATIONS COMMITTEE AND LEGISLATIVE COMMITTEE

August 12, 1936

1. *Roll Call.*—The meeting was called to order by Dr. H. H. Cummings, Chairman of the Legislative Committee, at 3:15 p. m., Olds Hotel, Lansing. Those present were Drs. Cummings, Ann Arbor; L. Fernald Foster, Bay City, Chairman of Public Relations Committee; F. T. Andrews, Kalamazoo; F. B. Miner, Flint; Roy H. Holmes, Muskegon; E. I. Carr, Lansing; L. G. Christian, Lansing; Henry Cook, Flint; L. J. Gariepy, Detroit; F. B. Burke, Detroit; Philip A. Riley, Jackson; C. F. Snapp, Grand Rapids; and A. V. Wenger, Grand Rapids. Also present were Secretary C. T. Ekelund, Pontiac; Dr. S. F. Horowitz, Bay City; Dr. Dean W. Hart, St. Johns; Dr. A. G. Sheets, Eaton Rapids; Mr. H. T. Corson, Chicago, of the Wheat Flour Institute; Mr. M. G. Schancupp, Assistant Attorney General, Lansing; and Executive Secretary Wm. J. Burns. Absent, Legislative Committee: Dr. H. E. Perry; Public Relations Committee: Dr. J. J. Walch.

2. *Minutes.*—The minutes of the joint meeting of the Legislative Committee with the Executive Committee of The Council July 29; the minutes of the Public Relations Committee, meeting of July 8, were dispensed with.

3. *Basic Science Bill.*—The committee gave further study to the proposed basic science bill.

4. *Wheat Flour Institute.*—Mr. H. T. Corson of the Wheat Flour Institute appeared before the Committee at the suggestion of Dr. Andrews. The Michigan State Medical Society in 1930 adopted a resolution relative to the use of bread, and the Kalamazoo Academy of Medicine desired advice as to whether a similar resolution should be adopted by it. This matter was thoroughly discussed, and referred to the Executive Committee of The Council.

5. *Bureau of Information.*—The Executive Secretary read three sample releases proposed for dissemination through the 425 newspapers of the state through the Bureau of Information. Motion of Drs. Gariepy-Snapp that releases on legislative matters be given to the press of Michigan at weekly intervals, to begin immediately. Carried unanimously.

Motion of Drs. Burke-Gariepy that a committee composed of the Chairman of the Public Relations Committee plus the Chairman of the Legislative Committee, and the Secretary of the Society be appointed to advise the Executive Secretary on all releases. Carried unanimously. The matter of ascertaining the value of the releases from the Bureau of Information was discussed, and it was felt that the best measure would be to subscribe to a clipping bureau. Motion of Drs. Gariepy-Cook that this committee subscribe to a clipping bureau service not to exceed $50. Carried unanimously.

The cost of the postage to mail the weekly releases to the 425 newspapers was approved.

6. *Legislative Bulletins.*—The matter of sending periodic legislative bulletins to the county medical societies was discussed. The Executive Secretary read a sample release. Motion of Drs. Christian-Burke that this first legislative bulletin be referred to the Public Relations Committee with power to edit and release. Carried unanimously.

In the future the Legislative Committee will furnish material for these legislative bulletins and refer same to the PRC for correction and dissemination. The copy will be developed to fit circumstances of the time of release.

7. *Study of Group Hospitalization.*—The motion of the Executive Committee of The Council, meeting of July 29, (Item 8) was read. The background was presented by Dr. Cook. It was felt that a joint meeting of the Michigan State Medical Society Legislative Committee with the Legislative Committee of the Michigan Hospital Association was indicated, and the Executive Secretary was requested to arrange same.

8. *Legislative Exhibit.*—Chairman Gariepy will call a meeting of his committee within the next week to complete arrangements for this exhibit.

9. *Inquiry from a Legislator.*—The inquiry of a legislator who had been very friendly to public health legislation as to how he could secure the support of the physicians in his district, as he was facing keen competition, was presented and discussed. Motion of Drs. Christian-Snapp that this Legislative Committee suggest to the officers of the particular county medical society in question that, if in their opinion this legislator will be a good representative for their district, that the Michigan State Medical Society would like to support him. Carried unanimously.

Recess for dinner, 6:30 to 7:30 p. m.

Dr. Foster, Chairman of the PRC, assumed the Chair at this point.

10. *PRC Letter No. 4.*—The various items for this release were suggested by Dr. Foster and the Executive Secretary. Dr. Tuck's letter relative to the proposed recodification of Michigan's laws to fit into the Social Security scheme was read. It was recommended that in PRC Letter No. 4 the statement should be made that the county medical society should be the mentor of everything medical in its district, that the society should know all about the Social Security Act and its implications and have something to say in the direction of policies developed under it. The other items proposed for PRC Letter No. 4 were approved.

Dr. Cook recommended that a description of the WCMS Plan (Pino Plan), as mimeographed by him, be sent with PRC Letter No. 4 to every county medical society to stimulate thought and action toward the establishment of postpayment plans. This was ordered done, on motion of Drs. Holmes-Carr, and that the enclosure be mentioned in PRC Letter No. 4, as such a plan is necessary for the borderline group.

11. *Medical Supplement in Newspapers.*—This was discussed, and on motion of Drs. Carr-Wenger was approved with the recommendation to county medical societies that it be put into operation throughout the state. Carried unanimously. The Executive Secretary was instructed to procure copies from Wichita, Kansas, and send a sample to each county medical society.

12. *Date of Releasing Brochure.*—Motion of Drs. Miner-Andrews that the Booklet "Who Wants So-

cialized or State Medicine!" be released at once. Carried unanimously.

13. *Fee Schedules A and B.*—Report was given that these schedules are to be studied and necessary revisions recommended by a special committee of The Council, Michigan State Medical Society.

14. *Legislative Bulletins.*—From the Legislative Committee came the proposed Legislative Bulletin No. 1. (See item 6 of these minutes.) Motion of Drs. Holmes-Andrews that Legislative Bulletin No. 1 be approved as presented and be sent out. Carried unanimously.

15. *Resolutions on Death of Dr. Duncan A. Cameron.*—Dr. Christian spoke of the recent death of Dr. Cameron and his fine work in the Legislature of 1933. This Committee recommended that the Executive Committee of The Council draw up resolutions to the memory of Dr. Cameron.

16. *Adjournment.*—The Chairmen expressed their appreciation to the officers, members and guests for their attendance at this long session on a very hot day, and for their excellent advice, and adjourned the meeting at 9:07 p. m.

Six Against Four

"Another pamphlet!"—"More material for the waste basket!"—"Just another circular!"—Let us hope that these phrases will not be used when the physician receives the new concise and striking booklet recently issued by Public Relations Committee of the Michigan State Medical Society. 'Tis well said that a "prophet is without honor in his own country" but the writer feels sure that in this case each physician will make this booklet a temporary bible and even revert back to his student days and memorize it; as he memorized the names of the nerves of the brain. 'Tis true that many of these arguments are well known to the average physician and without doubt the undermining motives of those self seekers who have sought to foster socialized medicine in some form or guise on the unsuspecting public, have been apparent to the family physician. On the other hand, while these ideas are present they are more or less in the nebulous form. But this booklet presents concise reason and answer to so called socialized medicine.

It is rather strange to note that source of the propaganda of socialized medicine is not most dangerous from those who boldly advocate this disastrous change. It requires no stretch of imagination or Sherlock Holmes to uncover "The Ethiopian in a woodpile" when this is advanced by the paid social worker. Naturally they want to hold their job, increase their importance and finally to reach that goal which is probably incident to the whole human race, that is to live without working or at least to live off our fellowman's work. These individuals are of small moment.

But what we have to fear is the individual who under the cloak and guise of helping the co-called busy practitioner finally helps her or himself to the choicest food of the table and leaves the crumbs of socialized medicine. To re-echo an article in the STATE MEDICAL JOURNAL, beware of the "Wooden Horse."

"SIX AGAINST FOUR" is a booklet to carry in your coat pocket along with your prescription pad, charge book and your pocketbook. And of these "Four Horsemen" this prophet may prove the most valuable.—From *Mercy Staff Bulletin* of September, 1936 (Mercy Hospital, Bay City, Mich.).

COUNTY SOCIETIES

EATON COUNTY

The Eaton County Medical Society held its regular September meeting at the Carnes Tavern, Charlotte, on the evening of Thursday, September 17, 1936. Following dinner, the meeting was at once turned over to Dr. Frank Stiles, Lansing dermatologist, who addressed the society in an informal manner on the subject "Common Contagious Skin Diseases." Very thoroughly, Dr. Stiles discussed scabies, the various forms of impetigo and the group of ringworm diseases. Strangely enough, the listening physicians were free to admit that they did not know quite as much about these rather hackneyed subjects as they had surmised. Dr. Stiles traced the life cycle of the acarus or sarcoptes scabiei in a very interesting fashion and discussed its diagnosis and treatment. He impressed upon his audience that the disease respects no social differences and that the diagnosis is often to neglect the possibility of scabies in patients in the upper social strata.

Following this talk, a business meeting was held during which and after the full deliberations of the society, it was decided that the delegate from this society to the House of Delegates of the Michigan State Medical Society, be instructed to carry to the House the message that the Eaton County Medical Society believes that the term of office of a councillor should be three years instead of five and that there should be no limitations as to the number of terms which he may serve. Dr. J. W. Davis, Medical Director of the Eaton County Health Unit of the W. K. Kellogg Foundation, and Dr. G. M. Byington, of the W. K. Kellogg Foundation, Battle Creek, spoke briefly about the work of the foundation for the coming year.

THOMAS WILENSKY, *Secretary*

HOUGHTON-KEWEENAW-BARAGA COUNTIES

Regular monthly meetings of the Houghton County Medical Society were resumed Tuesday, September 1, at the Douglas House, Houghton, with fifteen members present. The business session was taken up by report of the Public Relations Committee—Dr. H. M. Joy making the report. The Medical Society went on record that they were willing and anxious to coöperate with the Probate Judge in the filter system for afflicted children. Drs. Stewart, Kirton and Coffin were appointed as the Medical Filter Committee for this work. Drs. Levine and LaBine are the Filter Committee for adults.

A committee for drawing up new by-laws and constitution for the County Medical Society, consisting of chairman Dr. Waldie, Levine, Joy, Leo and King, was appointed. Dr. G. C. Stewart of Hancock read a paper on "The Injection or Ambulant Treatment of Hernia." Three cured cases were presented for examination and questions by members of the society. Slides were shown showing histological changes in muscle structure and the action of solutions in producing proliferation and growth of new connective tissue. These slides were the property of Dr. A. F. Bratrud of the University of Minnesota and he kindly lent them to Dr. Stewart. Dinner was served previous to the medical meeting.

G. C. STEWART, M.D.

WOMAN'S AUXILIARY

MRS. A. V. WENGER, *President,* 132 Grand Avenue, N.E., Grand Rapids.
MRS. CARL F. SNAPP, *Secretary-Treasurer,* 980 Plymouth Road, S.E., Grand Rapids.
MRS. FRANK W. HARTMAN, *Press Chairman,* 7440 La Salle Blvd., Detroit.

Woman's Auxiliary, Michigan State Medical Society

The Tenth Annual Session of the Woman's Auxiliary to the Michigan State Medical Society was officially opened Tuesday, September 22, at 8:30 a. m., in the Book-Cadillac Hotel, with a board meeting—breakfast. Mrs. A. M. Giddings of Battle Creek, president, was in the chair.

The reports of the County Units, which have been eagerly anticipated, were received with unusual interest.

Outstanding accomplishments briefly mentioned are as follows:

The *Hygeia* subscriptions goal was 598; the achievement was the placing of 1,862 subscriptions in schools.

It was disclosed that a large percentage of our members all over the State are active in lay organizations. Several are serving as department chairmen in the Michigan State Federation of Women's Clubs, two as vice chairmen of the Social Welfare Department, one of them that of public health, another the president of a district Nursing Association.

Wayne County, referred to as the "big sister" of the organization, has been especially active in its public relations department, providing several public lectures by prominent medical men on topics of interest and importance, study groups on the history of Medicine and the men who have poineered in this field; the Arts and Crafts Exhibit, which interested about one hundred exhibitors, a decided increase in membership; in Wayne County, 334 *Hygeia* subscriptions were placed in schools and a similar number in schools in Kalamazoo County. Calhoun County provided maternity kits for indigent mothers, also contributed five hundred dollars to the fund in a drive sponsored by local physicians to raise the mortgage on the shell of a new general hospital so that completion of the building could go on under federal aid.

Much work of benevolent and educational nature has been done to aid hospitals, homes for the aged, and underprivileged children.

The election of officers came next with the following results:

President—Mrs. A. V. Wenger, Grand Rapids.
President-elect—Mrs. G. C. Hicks, Jackson.
First Vice President—Mrs. Claire I. Straith, Detroit.
Secretary-Treasurer—Mrs. Carl F. Snapp, Grand Rapids.
Mrs. A. M. Giddings, retiring president, will remain a member of the Board of Directors.

STANDING COMMITTEE CHAIRMEN

Program—Mrs. F. T. Andrews, Kalamazoo.
Public Relations—Mrs. F. L. Foster, Bay City.
Press—Mrs. Frank W. Hartman, Detroit.
Organization—Mrs. Claire L. Straith, Detroit.
Legislation—Mrs. L. G. Christian, Lansing
Revision—Mrs. Jas. H. Dempster, Detroit.
Hygeia—Mrs. Arthur K. Woodburn, Grand Rapids.
Historian—Mrs. J. Earl McIntyre, Lansing.
Parliamentarian—Mrs. Elmer L. Whitney, Detroit.

A delightful luncheon was served in the Founder's Room following the election of officers. Mrs. Robert E. Fitzgerald, Wauwatosa, Wisconsin, president of the National Auxiliary, was the honored guest and speaker.

Mrs. Fitzgerald offered continued coöperation from the wives of physicians in projects calculated to develop national health programs and educational campaigns along lines of health preservation and medical enlightenment.

Mrs. Guy L. Kiefer of Lansing, organizer and honorary member of Wayne County Auxiliary, spoke briefly.

Greetings and recommendations were expressed by Dr. Grover C. Penberthy, retiring president of the Michigan State Medical Society, and his successor, Dr. H. E. Perry of Newberry. Dr. J. Milton Robb, chairman of the Auxiliary Advisory Committee, and Dr. F. T. Andrews of Kalamazoo, member of the committee.

The Dinner-Bridge at the Woman's City Club in the evening was a delightful affair. Merriment and interest registered high during the drawing for door prizes presented with the compliments of many local firms.

At 9:30 a. m., Wednesday, busses were boarded at the Book-Cadillac for Mr. Henry Ford's Greenfield Village, where bits of interest from all over the United States are displayed. The trek through this quaint, quiet village in horse-drawn vehicles is indeed a sharp contrast to the ride in swiftly moving motor cars on Michigan Avenue, which leads one very close to the entrance. After riding, walking and looking for many miles—and it was a hot day—the charm and coolness of Dearborn Inn was as refreshing to the visitors as an oasis in a desert would have been.

The Hobby Exhibit, the first of its kind to be undertaken by the Auxiliary, attracted the attention of all the visitors. Mrs. Milton D. Vokes, chairman, and her energetic committee are to be congratulated on the results of their enthusiastic efforts.

The wide variety of artistic talents displayed in original work and collections as hobbies, was fascinating.

As a fitting climax to the round of activities, the officers for 1935-1936 and 1936-1937 were honored by Mrs. Roger V. Walker, president of Wayne County Auxiliary, at a dinner party in her delightful home on Parker Avenue.

Hospitality reigns supreme in this home at all times, but on this occasion the three Walker youngsters, Frank, Frances, and Roger, Jr., who were granted a leeway on bedtime, supplemented this fact by assisting their mother in discharging her duties as hostess.

The members of Wayne County Auxiliary have happily served as hostesses to this superior group of women and a standing invitation is extended to them to attend their meetings when they have the opportunities.

* * *

Mrs. Hugo A. Freund served as Chairman of Registration for each Detroit Medical Convention during the past year and had been appointed to serve in that capacity during the State Meeting. The untimely death of this beloved and valued member is keenly felt by the Auxiliary. An appropriate obituary is being prepared.

(Mrs. Frank W.) BLANCHE B. HARTMAN,
State Press Chairman.

Father—You are going to marry that insignificant little fellow! Why, you used to say you would never marry a man less than six feet high.

Daughter—Oh, I know. But I decided to take off 20 per cent for cash.

MICHIGAN'S DEPARTMENT OF HEALTH

C. C. SLEMONS, M.D., Dr.P.H., Commissioner
LANSING, MICHIGAN

Communicable Disease Incidence

Although scarlet fever has been lower during the greater part of the last two years than for three or four years previous to that time, the incidence has again increased relatively during the past summer. In accordance with the season, the incidence is low but at the same time somewhat higher than for the two preceding summers. It is possible that this may be a forerunner of a somewhat increased incidence during the coming fall and winter months. Communities which have been relatively free from scarlet fever for several years should be on the lookout for a recurrence of the disease.

The poliomyelitis season is waning and indications are that there will be an exceptionally low number of cases this year. The only unusual occurrence in the United States so far coming to notice has been in Alabama and, to some slight degree, in adjoining states.

During the month of August there occurred two cases of smallpox in Allegan County. The first case had traveled extensively within and without the state during the incubation period. The other case was a second member of the family and was secondary to the first. These are the only cases that have occurred in the state for some months with the exception of a few in Detroit. The Detroit cases have been mild for the most part and somewhat atypical.

Meningitis continues to show a slightly higher than normal endemic incidence. However, there has been no material increase in incidence and there is no reason to expect any great number of cases or outbreaks in the near future.

Physicians Awarded Scholarships

Ten Michigan physicians have been granted scholarships for postgraduate training in public health at the University of Michigan and Johns Hopkins University, according to Dr. C. G. Slemons, health commissioner. The scholarships are made available by the Michigan Department of Health under the provisions of the Social Security Act providing for the adequate training of public health personnel.

The Johns Hopkins scholars include Dr. J. W. Davis, Eaton County health officer; Dr. E. V. Thiehoff, health officer in District No. 7, including Clare, Gladwin and Arenac counties; Dr. Russell Pleume, epidemiologist, State Department of Health; and Dr. Joseph Molner of Detroit. A leave of absence from their present duties has been granted the recipients for a year of postgraduate study in public health administration.

The six physicians who will attend the special intensive public health training course at the University of Michigan, beginning September 28, under the auspices of the State Department of Health, include Dr. Edwin H. Place, Blissfield; Dr. Clifton E. Merritt, Coldwater; Dr. Clifford C. Corkill, Fennville; Dr. Leo T. Moleski, Grand Rapids; Dr. Roelof Lanting, Ann Arbor; and Dr. Ervin J. Brenner, East Jordan.

County Health Officers

The organization of seven new county health departments, this year, has brought the total number of counties provided with a full time public health service to 50. Five of these new departments have now been provided with health officers.

Dr. M. C. Igloe has been appointed health officer of the Mecosta-Osceola district and Dr. L. W. Switzer is directing the activities of the Mason-Manistee district. Dr. L. A. Berg is directing the new Menominee county health department. Dr. R. C. Farrier took over the direction of the Delta county health department, September 1.

Dr. David Littlejohn, formerly health officer of Midland county, has been appointed health officer of Chippewa County. As yet no appointments have been made in the newly organized departments in Iron County or the Houghton-Keweenaw districts.

Maternal and Child Health Program

As a result of a broad program to improve maternal and child health services, Dr. Lillian R. Smith, director of the Bureau of Child Hygiene and Public Health Nursing, reports approximately every county in Michigan is now served by public health nurses sponsored either by the county units or the State Department of Health. A total of 29 field nurses are now carrying on educational nursing activities among mothers and children in thirty-two Michigan counties. The remainder of the counties, with but one exception, are served by local public health nurses.

Personnel changes in the bureau to meet the demands of the new program include the addition of Miss Mabel Munro as consultant in maternal and child health nursing in charge of staff nurses. Miss Munro was formerly director of the St. Joseph, Missouri. Visiting Nurses Association.

Two associate physicians who will assist Dr. Smith in both office and field work include Dr. Sue Hurst Thompson and Dr. Vida H. Gordan. Dr. Thompson comes to the Michigan department from Gary, Indiana, where she served as school physician. Dr. Gordan served during the past year as assistant resident in pediatrics at the University Hospital at Ann Arbor and comes to the department with a background of public health training and experience.

Dr. Pearl A. Toivonen is continuing her work as field physician, and Miss Annette M. Fox is serving as district nursing director for the Upper Peninsula with Miss Esther Nash, district director for the Lower Peninsula.

Bureau of Industrial Hygiene Created

A Bureau of Industrial Hygiene has been created in the Michigan Department of Health, with John M. Hepler, C.E., as director. The new bureau will concern itself with the investigation of occupational hazards in Michigan's many industrial plants, preventing common occupational diseases, combating industrial poisons, and improving environmental health factors in the hazardous occupations.

The highly industrialized nature of Michigan makes the work of such a bureau a significant phase of the whole public health program. Census figures indicate that 44.6 per cent of Michigan's workers are employed in the manufacturing, mercantile and mineral extraction industries compared to an average percentage of 30.9 for the United States. There are 860,164 workers in the potentially hazardous industries of the state. The United States Public Health Service estimates that 342,253

of these are engaged in occupations which may cause or have been known to be associated with specific occupational diseases. It is with this group that the activities of the new bureau will be concerned.

A preliminary survey of plant conditions to determine the scope of existing industrial hazards, the location of potential hazards, and to evaluate the need for preventive measures is being undertaken by the bureau. An important phase of the program will be the collection and analysis of case records of occupational diseases. Act 119, Public Acts of 1911, makes the reporting of occupational diseases mandatory upon every physician treating such a case. To insure the success of this work, the coöperation of all physicians in the reporting of occupational diseases will be neded.

OBITUARY

Dr. Duncan A. Cameron

DR. DUNCAN A. Cameron, dean of Northern Michigan Physicians, died at his home in Alpena on August 3, 1936, the cause of his death being angina pectoris. Dr. Cameron located in Alpena over half a century ago. He had been in failing health for the past few years, which compelled him to give up much of his large active practice, though he still continued to care for as many as his failing health would permit. Dr. Cameron was widely known and was the beloved physician among all who knew him.

Dr. Cameron graduated from the McGill University in 1884. He was born on May 7, 1863, on a farm near Strathroy, Ontario. He was the son of the late John Cameron, native of Scotland, who came to Canada in 1847. After his internship at one of the largest of Montreal's hospitals, Dr. Cameron came to Alpena. In 1885 he took post graduate work in New York and he studied in Chicago. In 1900-1901 Dr. Cameron went abroad for a year of postgraduate work at Edinburgh. Dr. Cameron, as is seen, was well trained, and was both surgeon and physician of unusual ability. He was a member of the Alpena County, Michigan State, and American Medical Associations. He always took an active interest in medical affairs, being at one time vice-president of the Michigan State Medical Society. He was, in 1933, Democratic member of the Michigan House of Representatives for the Alpena-Alcona district. During his term of office, he served on four committees, namely the Apportionment, Public Health, Kalamazoo State Hospital, and Ypsilanti State Hospital.

Dr. Cameron is survived by his wife, Edith Young Cameron, and one daughter, Mrs. W. B. Howell of Montreal.

Dr. Duncan A. Cameron, "Rory" of the great heart, passed to his reward Tuesday morning, August 4, after fifty-one years of unexampled service to the people of the community which he loved with all the warmth of his rich soul—what a fluttering of the angels' wings there must have been as they came to welcome that soul.

Dr. Cameron needs no eulogy here, nor on any other printed page. His epitaph is graven immutably on the hearts of thousands of people to whom he was physician and friend during the glorious half century and more that he gave to humanity—women with whom he went into the valley of the shadow, men snatched back from the grave by his often heroic treatment, children by whose side he kept long-night vigil.

Selfless, generous to a fault, tender as a woman, lion-hearted on occasion, there was only one Doc Cameron. We shall not see his like again.—*The Alpena News.*

Dr. Ira Dean Loree

DR. IRA Dean Loree of Ann Arbor, died at his home on August 10, 1936, of a heart attack. Dr. Loree was born sixty-seven years ago. He joined the faculty of the University of Michigan in 1902 in the Department of Surgery. He held the position of professor from 1908 to 1920, when he resigned from the University to devote full time to the work of St. Joseph's Hospital. He was born in Ridgeway, Michigan, and had lived in Ann Arbor since 1898, where he entered the University Medical School atfer preliminary education at the Michigan State Normal College. He was a member of the Washtenaw County, Michigan State, and the American Medical Associations. He is survived by his widow, and one son, Douglas, of Ann Arbor.

Dr. Lois Torres

DR. LOIS Torres was a graduate from the school of music of Milton College, Milton, Wisconsin. She was also a graduate nurse from the Battle Creek, Michigan, sanitarium. After several years spent in the nursing profession, she completed a medical course in the University of Michigan at Ann Arbor. She then accepted a position as school physician at the State Normal School of Mt. Pleasant, Michigan. She was affiliated with this school for five years, but failing health necessitated a leave of absence from work on February last. After several months of ill health, she passed away in the home of her sister at St. Andrews, Florida. Dr. Lois Torres was born on January 7, 1890, at Farina, Illinois. She was the youngest of ten children born to Mr. and Mrs. E. M. Whitford. Three brothers and three sisters survive.

CORRESPONDENCE

To the Editor of the
JOURNAL OF THE MICHIGAN STATE MEDICAL SOCIETY:

Sixty-odd years ago a Homeopathic medical school was started in Lansing but was discontinued soon after it became evident that no subsidy might be expected from the State treasury. An effort is now under way to collect data that will permit the writing of a complete and accurate history of this institution, fully documentated and carefully compiled.

Any help along this line would be gratefully received, especially printed matter, manuscripts, letters or other contemporary records. A diploma would be especially valuable and if received would be promptly photographed and returned.

H. S. BARTHOLOMEW.

Lansing, Michigan, September 9, 1936
1115 Capital National Building

GENERAL NEWS AND ANNOUNCEMENTS

Mrs. Hugo A. Freund, wife of Dr. Hugo A. Freund of Detroit, died September 12 after a week's illness of pneumonia.

* * *

Dates to Remember:
November 3, 1936—General November Election.
January, 1937—Legislature convenes in Regular Session in Lansing.

* * *

Past-President Louis J. Hirschman of Detroit and the former Mrs. Hannah C. Kellogg of Battle Creek were married in Detroit on August 15. Felicitations!

* * *

The Bulletin of the Muskegon County Medical Society states: "The future of the practice of medicine depends upon organized medicine. The success of organized medicine depends upon your support."

* * *

The Upper Peninsula Medical Society held a most successful meeting—its 39th—at Ishpeming on August 20-21, 1936. A complete story and registration data will be published in the November JOURNAL.

* * *

The History of Medicine in Michigan is obtainable in two volumes, price five dollars. Order through the Michigan State Medical Society, 2020 Olds Tower, Lansing. A fine Christmas present for any physician!

* * *

The brochure of the Michigan State Medical Society "Who Wants Socialized or State Medicine!" was sent to every member of the State Society the latter part of August. Additional copies upon request. Write 2020 Olds Tower, Lansing.

* * *

The Houghton-Keweenaw-Baraga Medical Society inaugurated its 1936-37 season on October 6 with a meeting at the Miscowaubeh Club, Calumet. All meetings are held on the first Tuesday of each month. The Annual Meeting will be held in Houghton on Tuesday, January 5, 1937.

* * *

Crippled Child Committments: August, 1936—180 cases, of which 82 went to University Hospital. One hundred of these 180 were new cases. Included in the above total were 41 cases from Wayne County, of which 6 were committed to the University Hospital.

* * *

Hundreds of social and welfare workers, hospital assistants, board members, civic leaders, and influential citizens visited the Exhibit of the Michigan State Medical Society in the Book-Cadillac Hotel on Tuesday, September 22 when the public was invited to inspect the 122 scientific and technical displays.

* * *

State Society Night will be celebrated by the Ingham County Medical Society on Tuesday evening, November 10, 1936. The newly elected officers of the Michigan State Medical Society will be honored. Dr. John H. J. Upham, Columbus, Ohio, President-Elect of the A. M. A., will be guest speaker.

* * *

Eighty-six medical golfers enjoyed invitational golf at the Detroit Golf Club on Tuesday, September 22, on the occasion of the Annual Meeting of the Michigan State Medical Society. A complete story on this party, the prize winners, and the individual scores will be published in the November JOURNAL.

* * *

The following officers were elected for the year 1936-37 by the Section of Dermatology and Syphilology at the Michigan State Medical Society meeting held in Detroit, September 23 and 24, 1936; Chairman, Dr. G. Warren Hyde, Detroit Polyclinic; and Secretary, Dr. Ruth Herrick, 628 Medical Arts Bldg., Grand Rapids.

* * *

The Detroit Medical News of September 14 was designated as the "Woman's Auxiliary Number." This issue was devoted to a résumé of the good work done by the Woman's Auxiliary to the Wayne County Medical Society during the past year. The publication was finely illustrated and the editorial content was excellent.

* * *

The Maternal and Child Health Program under the Social Security Act is being inagurated and developed by the State Department of Health, in cooperation with the individual county medical societies, in the following counties: Cass, Clinton, Gratiot, Ionia, Lapeer, Livingston, Macomb, Muskegon, St. Joseph and Tuscola.

* * *

The eighth annual convention of the Central Association of Obstetricians and Gynecologists met October 15, 16, and 17 at the Statler Hotel, Detroit. The scientific sessions were held afternoons with the Detroit Obstetrical and Gynecological Society furnishing an evening program October 15. Dr. Emil Novak was guest speaker at the convention.

* * *

A high-light of the Past Presidents' Dinner of September 23, 1936, held on the occasion of the Annual Meeting of the Michigan State Medicine Society, was the presentation of Past Presidents' keys to the living former chief executives (fourteen) of the Michigan State Medical Society.

* * *

The Hobby Exhibit at the Annual Meeting was a unique presentation. Physicians with hobbies showed their avocational work, and it was an exhibit to be proud of. The show was arranged through the courtesy of the Woman's Auxiliary, and much credit is due the ladies for the unusual success of this innovation at the Annual Meeting of 1936.

* * *

Dr. C. C. Walker of Detroit died September the 28th while leaving his home for his office. Dr. Walker graduated from the Medical Department of the University of Michigan, 1904. After graduation, he located in Siam where he was chief of an eye hospital until 1919 when he located in Detroit, confining his work to diseases of the eye. He is survived by his wife, two sons and one daughter.

* * *

The University of Michigan Pediatric and Infectious Disease Society will hold its annual meeting at the University on October 30 and 31. A business session will precede the regular program, which consists of twenty-four different papers by prominent pediatricians at the University and throughout the state. Owing to the fact that this program has reached us as we go to press, it is impossible to present the different items in detail.

County medical societies desiring assistance in obtaining speakers for their meetings are invited to send their resquests to the Michigan State Medical Society which will endeavor to obtain men of outstanding talent to appear before the members of the county medical society. Be sure to indicate the exact date, time and place of the meetings, subjects according to first choice, second choice and third choice, and the possible attendance.

* * *

"Who Wants Socialized or State Medicine"? is in its second edition (first printing, August, 1936; second printing, September, 1936), and judging from the avalanche of requests for copies of this booklet prepared by the Public Relations Committee of the Michigan State Medical Society, the third edition is not far off. The Iowa State Medical Society, for example, inquired concerning the possibility of sending a copy of the brochure to each one of its twenty-five hundred (2,500) members!

* * *

Dr. L. Fernald Foster, Secretary of the Michigan State Medical Society, has been invited by Dr. Olin West, Secretary of the A. M. A., to present a paper on the Michigan Filter System at the Annual Conference of Secretaries of Constituent State Medical Associations to be held in Chicago, Monday and Tuesday, November 16 and 17.

Dr. West invites all the officers and members of the Michigan State Medical Society to attend this Conference, and assures all a hearty welcome.

* * *

Afflicted Child Commitments: August, 1936—971 Cases, of which 250 went to University Hospital. Included in this total of 971 cases were 259 commitments from Wayne County, of which 31 were sent to the University Hospital. In July, 923 cases were committed, of which 253 went to University Hospital. In June, 903 cases were committed, of which 259 went to University Hospital. In May, 1,325 cases were committed, of which 262 went to University Hospital.

* * *

The Highland Park Physicians' Club will hold its 11th Annual Clinic at the Highland Park General Hospital on December 2, 1936. Among those on the program are Drs. Dean Lewis of Baltimore; George Crile of Cleveland; A. T. Bedell of Albany; C. A. Aldrich of Chicago; F. F. Tisdale of Toronto; H. L. Kretschmer of Chicago; L. J. Harris of Toronto; and Prof. Curtis of Columbus, O. For further information and a program write the Highland Park Physicians' Club, c/o The Highland Park General Hospital, Highland Park, Michigan.

* * *

The 1936 Post-graduate Extension Course of the Michigan State Medical Society and the University of Michigan Department of Postgraduate Medicine was inaugurated on October 5. The course continues for eight weeks, one day each week in Bay City, Traverse City - Manistee - Cadillac, Flint, Grand Rapids, Battle Creek-Kalamazoo, and Lansing-Jackson. Programs have been mailed to every physician in the state. For additional information, write the Department of Postgraduate Medicine, University Hospital, Ann Arbor.

* * *

The State Society Committee Studying Fee Schedules A, B, C, and D, presented its findings to the Michigan Crippled Children Commission on September 17, 1936.

The Crippled Children Commission is now taking up the matter with the State Administrative Board and with the Auditor General, as the fees are determined jointly by the Crippled Children Commission and the above-mentioned officials of the State of Michigan. Upon final adoption of the amended fee schedules, THE JOURNAL will publish same in detail so that every member of the Michigan State Medical Society will have a copy available on his desk.

* * *

American Board of Obstetrics and Gynecology.—The next written examinations and review of case histories of Group B applicants by the American Board of Obstetrics and Gynecology will be held in the various cities in the United States and Canada, on Saturday, November 7, 1936, and on Saturday, March 6, 1937.

The next general examination for all candidates (Groups A and B) will be held in Atlantic City, N. J., on June 8 and 9, 1937.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania. Applications for these examinations must be filed in the Secretary's office not later than sixty days prior to the scheduled date of examination.

* * *

Seventh Annual W. C. M. S. Golf Tournament a Success—Golf was the main topic for the Wayne County Medical Society on the 26th of August, 1936. The Seventh Annual Tournament was staged on that date at the Birmingham Golf Club and drew a large and enthusiastic crowd.

The event exceeded all expectations, furnished several grand hours for the physician golfers and their friends and placed the day in the realm of pleasant memories for all. One hundred and eighty-seven golfers played eighteen or more holes of golf, and in the evening two hundred and ten were seated for the dinner and to hear the announcements of laurels won.

Mr. Wm. J. Burns acted as toastmaster and presented the prizes, enumerating fittingly on the highlights pertaining to the trophies. Dr. Claude G. Burgess led the field and was awarded the Holmes Trophy, significant of the W. C. M. S. Golf Championship. Chairman W. R. Clinton and the Golf Committee ably assisted by James A. Bechtel, Acting Executive Secretary of the Society, are to be congratulated on the efficient marshalling of the infinite details and the good management in bringing the 1936 party to a successful conclusion.

* * *

Refresher Courses: Dr. Alexander M. Campbell of Grand Rapids is conducting a "refresher course" in Obstetrics for six weeks. He will devote his whole time to this post-graduate effort which began September 28 and will continue to November 7, 1936.

Dr. Campbell's weekly schedule will be as follows:

Traverse City—Lecture, Mon. evening; (first lecture, Sept. 28, 8:00 p. m.).
Traverse City—Consultation, Tues. morning; (first consult., Sept. 29, 9:00 a. m.).
Petoskey—Lecture, Tues. evening; (first lecture, Sept. 29, 8:00 p. m.)
Petoskey—Consultation, Wed. morning; (first consult., Sept. 30, 9:00 a. m.).
Alpena—Lecture, Wed. evening; (first lecture, Sept. 30, 8:00 p. m.).
Alpena—Consultation, Thurs. morning; (first consult., Oct. 1, 9:00 a. m.).
Grayling—Lecture, Thurs. evening; (first lecture, Oct. 1, 8:00 p. m.).
Grayling—Consultation, Fri. morning; (first consult., Oct. 2, 9:00 a. m.).

These intensive post-graduate courses are paid for out of Social Security funds. They are sponsored and arranged by the Maternal Health Committee of the Michigan State Medical Society and the State Department of Health. Future refresher courses in other subjects, such as Pediatrics, will depend on the attendance at these initial conferences.

The officers of the Michigan State Medical Society urged the inauguration of these refresher courses for physicians who have patients in rural areas.

Dr. C. C. Slemons, State Health Commissioner, will appreciate hearing from members with suggestions and ideas for future courses to fit the needs of particular communities.

* * *

Post-graduate Courses in Medicine—The Department of Post-graduate Medicine of the University of Michigan and the Michigan State Medical Society has announced courses for practitioners in the following centers in the state: Bay City, Traverse City-Manistee-Cadillac, Flint, Grand Rapids, Battle Creek-Kalamazoo, Lansing, Jackson. The courses begin the first week in October and continue for eight weeks. The following subjects will be discussed: Diseases of Circulation, Allergic Diseases, Psychoneuroses, Pneumonia, Appendicitis, Diseases of the Breast, Accidental Injuries, X-rays in Modern Medicine, Ulcerative Lesions of the Gastro-Intestinal Tract, Gynecology and Obstetrics, Diseases of the Skin, Urinary Tract Obstructions, Diseases of the Ear, and Diseases of the Eye.

By writing the Department of Post-graduate Medicine, University of Michigan, detailed information will be sent in the form of folders, giving more specific information regarding the scope of the various subjects and also the personnel of the extra-mural lecture staff.

Bay City (Mercy Hospital), October 5, 10:00 A. M., Pathology, Dr. John C. Bugher; 1:00 P. M., Circulatory Disease, Diagnosis and Management, Dr. Paul S. Barker. *October 12,* 10:00 A. M., The Allergic Diseases, Dr. Reuben L. Kahn; 1:00 P. M., Allergic Diseases, Dr. John M. Sheldon. *October 19,* 10:00 A. M., The Psychoneuroses, Dr. Fred P. Currier; 1:00 P. M., Pneumonia, Dr. Richard M. McKean. *October 26,* 10:00 A. M., Appendicitis, Diseases of the Breast, Dr. Harold K. Shawan, 1:00 P. M., Injuries, Dr. Walter G. Maddock. *November 2,* 10:00 A. M., Importance of X-rays in Modern Medicine, Dr. Carleton B. Peirce; 1:00 P. M., Ulcerative Lesions of Gastro-intestinal Tract. Clinical Management, Dr. Henry Field, Jr. *November 9,* 10:00 A. M., Malpositions of the Uterus, Dr. Jean P. Pratt; 1:00 P. M., Post-partum Infection, Dr. Ward F. Seeley. *November 16,* 10:00 A. M., Diseases of the Skin, Dr. Udo J. Wile; 1:00 P. M., Urinary Tract Obstructions, Dr. Reed M. Nesbit. *November 23,* 10:00 A. M., Diseases of the Ear, Dr. Albert C. Furstenberg; 1:00 P. M., Diseases of the Eye, Dr. Dean W. Myers.

Battle Creek-Kalamazoo (Borgess Hospital, Kalamazoo), *October 6,* 10:00 A. M., Pathology, Dr. Plinn F. Morse; 1:00 P. M., Circulatory Disease, Diagnosis and Management, Dr. Robert L. Novy. *October 13* (Leila Post Hospital, Battle Creek), Dr. Reuben L. Kahn, Allergic Disease; 1:00 P. M., Allergic Disease, Dr. John M. Sheldon. *October 20* (Borgess Hospital, Kalamazoo), 10:00 A. M., The Psychoneurosis, Dr. Heinrich A. Reye; 1:00 P. M., Pneumonia, Dr. Cyrus C. Sturgis. *October 27* (Leila Post Hospital, Battle Creek), 10:00 A. M., Appendicitis, Diseases of the Breast, Dr. Fredk. A. Coller; 1:00 P. M., Injuries, Dr. Walter G. Maddock. *November 3* (Borgess Hospital, Kalamazoo), 10:00 A. M., Importance of X-rays in Modern Medicine, Dr. Fred J. Hodges; 1:00 P. M., Ulcerative Lesions of Gastro-Intestinal Tract, Clinical Management, Dr. Clyde E. Vreeland. *November 10* (Leila Post Hospital, Battle Creek) 10:00 A. M.; Malpositions of the Uterus, Dr. Lewis E. Daniels, 1:00 P. M., Post-partum Infection, Dr. Hampton P. Cushman. *November 17* (Borgess Hospital, Kalamazoo), 10:00 A. M., Diseases of the Skin, Dr. Robert C. Jamieson; 1:000 P. M., Urinary Tract Obstructions, Dr. Harry W. Plaggemeyer. *November 24* (Leila Post Hospital), 10:00 A. M., Diseases of the Ear, Dr. J. Milton Robb; 1:00 P. M., Diseases of the Eye, Dr. Elmer L. Whitney.

Flint (Hurley Hospital), October 7, 10:00 A. M., Pathology, Dr. Frank W. Hartman; 1:00 P. M., Circulatory Disease, Diagnosis and Management, Dr. F. Janney Smith. *October 14,* 10:00 A. M., Dr. Reuben L. Kahn, Allergic Disease; 1:00 P. M., Allergic Disease, Dr. John M. Sheldon. *October 21,* 10:00 A. M., The Psychoneuroses, Dr. Carl D. Camp; 1:00 P. M., Pneumonia, Dr. Hugo A. Freund. *October 28,* 10:00 A. M., Appendicitis, Diseases of the Breast, Dr. Roy D. McClure; 1:00 P. M., Injuries, Dr. Walter G. Maddock. *November 4,* 10:00 A. M., Importance of X-rays in Modern Medicine, Dr. James H. Dempster; 1:00 P. M., Ulcerative Lesions of Gastro-Intestinal Tract, Clinical Management, Dr. Fredk. G. Buesser. *November 11,* 10:00 A. M., Malpositions of the Uterus, Dr. Harold C. Mack; 1:00 P. M., Post-partum Infection, Dr. Harold Henderson. *November 18,* 10:00 A. M., Diseases of the Skin, Dr. Loren W. Shaffer; 1:00 P. M., Urinary Tract Obstructions, Dr. Robert E. Cumming. *November 25,* 10:00 A. M., Diseases of the Ear, Dr. Carl F. Snapp; 1:00 P. M., Diseases of the Eye, Dr. Don Marshall.

Grand Rapids—October 8 (St. Mary's Hospital), 10:00 A. M., Pathology, Dr. Carl V. Weller; 1:00 P. M., Circulatory Disease, Diagnosis and Management, Dr. Frank N. Wilson. *October 15* (Blodgett Hospital), Allergic Disease, 10:00 A. M.; Dr. Reuben L. Kahn; 1:00 P. M., Allergic Disease, Dr. John M. Sheldon. *October 22* (Butterworth Hospital), 10:00 A. M., The Psychoneuroses, Dr. Carl D. Camp; 1:00 P. M., Pneumonia, Dr. Douglas Donald. *October 29* (St. Mary's Hospital), 10:00 A. M., Appendicitis, Diseases of Breast, Dr. Charles S. Kennedy; 1:00 P. M., Injuries, Dr. Walter G. Maddock. *November 5* (Blodgett Hospital), Importance of X-rays in Modern Medicine, Dr. Samuel W. Donaldson; 1:00 P. M., Ulcerative Lesions of Gastro-Intestinal Tract. Clinical Management, Dr. Bruce Lockwood. *November 12* (Butterworth Hospital) 10:00 A. M., Malpositions of the Uterus, Dr. Norman F. Miller; 1:00 P. M., Postpartum Infection, Dr. Roger S. Siddall. *November 19* (St. Mary's Hospital), 10:00 A. M., Diseases of the Skin, Dr. George Van Rhee; 1:00 P. M., Urinary Tract Obstructions, Dr. Fredk. H. Cole. *December 3* (Blodgett Hospital), Diseases of the Ear, 10:00 A. M., Dr. James H. Maxwell; 1:00 P. M., Diseases of the Eye, Dr. Don M. Campbell.

Lansing-Jackson, October 8 (Sparrow Hospital, Lansing), 10:00 A. M., Circulatory Disease, Dr. James E. Davis; 1::00 P. M., Circulatory Disease, Dr. Edw. D. Spalding. *October 15* (Foote Hospital), Jackson, 10:00 A. M., Appendicitis, Diseases of the Breast, Dr. Clair F. Vale; 1:00 P. M., Injuries, Dr. Walter G. Maddock. *October 22* (St. Lawrence Hospital, Lansing), 10:00 A. M., The Psychoneuroses, Dr. Heinrich A. Reye; 1:00 P. M., Pneumonia, Dr. A. Hazen Price; *October 29* (Mercy Hospital, Jackson), 10:00 A. M., Diseases of the Skin, Dr. Harther L. Keim; 1:00 P. M., Urinary Tract Obstructions, Dr. Wm. E. Keane. *November 5* (Sparrow Hospital, Lansing), 10:00 A. M., Importance of X-rays in Modern Medicine, Dr. Howard P. Doub; 1:00 P. M., Ulcerative Lesions of Gastro-Intestinal Tract. Clinical Management, Dr. Frank J. Sladen. *November 12* (Foote Hospital, Jackson), 10:00 A. M., Malpositions of the Uterus, Dr. George A. Kamperman; 1:00 P. M., Post-partum Infection, Dr. Alexander M. Campbell. *November 19* (St. Law-

rence Hospital, Lansing), 10:00 A. M., Allergic Diseases, Dr. Reuben L. Kahn; 1:00 P. M., Allergic Diseases, Dr. John M. Sheldon. *December 3* (Mercy Hospital, Jackson), 10:00 A. M., Diseases of the Ear, Dr. H. Lee Simpson; 1:00 P. M., Diseases of the Eye, Dr. Parker Heath.

Traverse City-Cadillac-Manistee, October 9 (Munson Hospital, Traverse City), 10:00 A. M., Pathology, Dr. Osborne A. Brines; 1:00 P. M., Circulatory Disease, Diagnosis and Management, Dr. Douglas Donald. *October 16* (Mercy Hospital, Cadillac), 10:00 A. M., Allergic Disease, Dr. Reuben L. Kahn; 1:00 P. M., Allergic Disease, Dr. John M. Sheldon. *October 23* (Munson Hospital, Traverse City), 10:00 A. M., The Psychoneuroses, Dr. Russel N. DeJong; 1:00 P. M., Pneumonia, Dr. Gordon B. Myers. *October 30* (Mercy Hospital, Manistee), 10:00 A. M., Appendicitis, Diseases of the Breast, Dr. Henry J. Vanden Berg; 1:00 P. M., Injuries, Dr. Walter G. Maddock. *November 6* (Mercy Hospital, Cadillac), 10:00 A. M., Importance of X-rays in Modern Medicine, Dr. Vernon M. Moore; 1:00 P. M., Ulcerative Lesions of Gastro-Intestinal Tract, Clinical Management, Dr. Herman H. Riecker. *November 13* (Mercy Hospital, Manistee), 10:00 A. M., Malpositions of the Uterus, Dr. Norman R. Kretzschmar; 1:00 P. M., Postpartium Infection, Dr. Howard H. Cummings. *November 20* (Munson Hospital, Traverse City), 10:00 A. M., Diseases of the Skin, Dr. George H. Belote; 1:00 P. M., Urinary Tract Obstructions, Dr. Wm. J. Butler. *November 22* (Mercy Hospital, Cadillac), 10:00 A. M., Diseases of the Ear, Dr. Ferris Smith; 1:00 P. M., Diseases of the Eye, Dr. F. Bruce Fralick.

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THE AMERICAN BOARD OF INTERNAL MEDICINE (Inc.)

The American Board of Internal Medicine, incorporated February 28, 1936, completed its organization on June 15, 1936. The officers chosen were Walter L. Bierring, M.D., Des Moines, Chairman; Jonathan C. Meakins, M.D., Montreal, Vice Chairman, and O. H. Perry Pepper, M.D., Philadelphia, Secretary-Treasurer. These officers, with the following six members, constitute the present membership of the board: David P. Barr, M.D., St. Louis; Reginald Fitz, M.D., Boston; Ernest E. Irons, M.D., Chicago; William S. Middleton, M.D., Madison; John H. Musser, M.D., New Orleans, and G. Gill Richards, M.D., Salt Lake City.

The term of office of each member will be three years, and no member can serve more than two consecutive three-year terms.

The organization of the Board is the result of effective effort on the part of the American College of Physicians in conjunction with the Section on Practice of Medicine of the American Medical Association and these two organizations are represented in the membership of the Board on a five to four ratio respectively.

The American Board of Internal Medicine had previously received the official approval of the two bodies fostering its organization, as well as that of the Advisory Board of Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

The purpose of the Board will be the certification of specialists in the field of internal medicine, and the establishment of qualifications with the required examination procedure for such certification.

While the Board is, at present, chiefly concerned with the qualification and procedure for certification in the general field of internal medicine, it is intended to inaugurate immediately after July 1, 1937, similar qualification and procedure for additional certification in certain of the more restricted and specialized branches of internal medicine, as gastroenterology, cardiology, metabolic diseases, tuberculosis, allergic diseases, et cetera. Such special certification will be considered only for candidates who have passed at least the written examination required for certification in general internal medicine. The operation of such a plan will require the active participation and coöperation of recognized representatives from each of such special fields of medicine.

Each applicant for admission to the examination in internal medicine will be required to meet the following standards:

General Qualifications

1. Satisfactory moral and ethical standing in the profession.

2. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies will not be required.

Professional Standing

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Completion of an interneship of not less than one year in a hospital approved by the same council.

3. In the case of an applicant whose training has been reecived outside of the United States and Canada, his credentials must be satisfactory to the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

Special Training

1. Five years must elapse after completion of a year's internship in a hospital approved for interne training before the candidate is eligible for examination.
2. Three years of this period must be devoted to special training in internal medicine. This requirement should include a period of at least several months of graduate work under proper supervision in anatomy, physiology, biochemistry, pathology, bacteriology, or pharmacology, particularly as related to the practice of internal medicine.

   This work may be carried on in any domestic or foreign medical school or laboratory recognized by the Council on Medical Education and Hospitals of the American Medical Association as offering appropriate facilities for this type of postgraduate experience; or it may include a period of at least several months of graduate work under proper supervision in internal medicine or in its restricted and specialized branches in any domestic or foreign hospital, clinic, or dispensary, recognized by the above Council as offering appropriate facilities for this type of postgraduate experience.
3. A period of not less than two years of special practice in the field of internal medicine or in its more restricted and specialized branches.

The American Board of Internal Medicine does not propose to establish fixed rules for the preliminary training of candidates for certification in this field. Broad general principles for training, however, may be outlined, although such suggestions as are made must, of

necessity, be subject to constant changes reflecting the dynamic nature of the specialty.

A sound knowledge of physiology, biochemistry, pharmacology, anatomy, bacteriology, and pathology, in so far as they apply to disease, is regarded as essential for continued progress of the individual who practices internal medicine. The more factual knowledge of medicine and its basic sciences is not sufficient. The candidate must have had training in their use in furthering his understanding of clinical medicine. This implies practical experience under the guidance of older men who bring to their clinical problems ripe knowledge and critical judgment. Preparation to meet this requirement adequately may be even more difficult to obtain than the so-called scientific training. It may, however, be acquired in the following ways:

(a) By work in a well-organized hospital outdoor clinic conducted by competent physicians.

(b) By a prolonged period of resident hospital appointments likewise directed by skilled physicians.

(c) By a period of training in intimate association with a well-trained and critical physician who takes the trouble to teach and guide his assistant rather than to require him only to carry out the minor drudgery of a busy practice.

4. The Board does not consider it to the best interests of internal medicine in this country that rigid rules as to where or how the training outlined above is to be obtained. Medical teaching and knowledge are international. The opportunities of all prospective candidates are not the same. Some may have the opportunity of widening their knowledge by a period of study abroad. Others, at the other extreme, may be restricted to a comparatively narrow geographic area and their detailed training must be obtained in short periods scattered over a long time. Although it is laid down that at least five years must elapse between the termination of the first interne year and the time when the candidate is eligible to take the examination, a longer period is advisable. The Board wishes to emphasize that the time and training are but means to the end of acquiring a broadness and depth of knowledge of internal medicine which the candidate must demonstrate to the Board in order to justify it in certifying that he is competent to practice internal medicine as a specialty. The responsibility of acquiring the knowledge as best he may rests with the candidate, while the responsibility of maintaining the standard of knowledge required for certification devolves on the Board.

Method of Examination

The examination required of candidates for certification as specialists in Internal Medicine will comprise Part I (written) and Part II (practical or clinical).

Part I. The written examination is to be held simultaneously in different sections of the United States and Canada and will include:

(a) Questions in applied physiology, physiological chemistry, pathology, pharmacology, and the cultural aspects of medicine.

(b) Questions in general internal medicine.

The first written examination will be held in December, 1936, and candidates successful in this written test will be eligible for the first practical or clinical examination which will be conducted by members of the Board near the time for the annual session of the American College of Physicians at St. Louis in April 1937. The second practical examination will be held at Philadelphia near the time of the annual session of the American Medical Association in Atlantic City in June, 1937.

The fee for examination is forty dollars which must accompany the application and an additional fee of ten dollars is required when the certificate is issued.

Application blanks and further information can be obtained by addressing the office of the chairman, Walter L. Bierring, M.D., 406 Sixth Avenue, Des Moines, Iowa, U. S. A.

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MILITARY SURGEONS MEET IN DETROIT

The 44th Annual Convention of the Association of Military Surgeons of the United States will be held in Detroit on October 29, 30, and 31, 1936. This association was organized forty-five years ago in Chicago. The leading spirit in the organization was the late Nicholas Senn, one of the most noted surgeons in the United States of his time. Dr. Senn, or Colonel Senn, at the time was surgeon-general of the National Guard Organizations of Wisconsin and Illinois. The purpose of a national organization was to improve the character and efficiency of medical staffs; in a word, for the advancement of military and accidental surgery and all things pertaining to the health and welfare of the civilian soldier.

The association, at its inception, was purely a national guard movement and the title of the association first adopted was Association of Military Surgeons of the National Guard. The association publishes its own journal, the *Military Surgeon,* which has a circulation of 4,500 copies. The current number of the *Military Surgeon,* namely, for October, contains a full program of the Detroit meeting as well as a brief description of Detroit. The headquarters will be at the Book-Cadillac Hotel. The fourth floor of the hotel will be devoted to scientific and commercial exhibits. The general scientific sessions will be held in the grand ball room of the hotel. The program is as follows:

WEDNESDAY, OCT. 28:

8:00 P.M.—Meeting of the Executive Council, Book-Cadillac Hotel.

THURSDAY, OCT. 29:

9:15 A.M.—Business meeting of the Association.

OPENING SESSION

10:15 A.M.—Col. Burt R. Shurly, Chairman, Committee of Arrangements, Presiding.

Invocation: Capt. B. W. Pullinger, Chaplain, 107th Med. Regt.

Addresses of Welcome: Hon. Frank D. Fitzgerald, Governor of Michigan.

Hon. Frank Couzens, Mayor of Detroit.

Col. Ralph M. Parker, U. S. Army, Michigan Reserve Division.

Response: Dr. Charles M. Griffith, President of the Association.

Addresses: Major Gen. Charles R. Reynolds, Surgeon General U. S. Army.

Rear Adm. P. S. Rossiter, Surgeon General U. S. Navy.

Major Gen. Edward Croft, Chief of Infantry, U. S. Army.

Major Gen. Albert H. Blanding, Chief Natl. Guard Bureau.

Brig. Gen. Frank T. Hines, Director of Veterans' Affairs.

Dr. Leroy M. S. Miner, President, American Dental Assn.

Med. Dir. Bolivar J. Lloyd, U. S. Public Health Service.

President's Address: Dr. Charles M. Griffith, Med. Dir. Veterans' Administration.

12:30 P.M.—Ladies Luncheon, Book-Cadillac Hotel.

1:30 P.M.—Dr. Philip B. Matz, Chief of Research Sub-Division, Veterans' Adm.
Subject: Diabetes Mellitus among Veterans of the World War.

2:00 P.M.—Major Frederick G. Buesser.
Subject: Remarks on the Treatment of Peptic Ulcer. (Lantern slides.)

2:30 P.M.—Lieut. Col. Frederick A. Coller.
Subject: Gas Bacillus Infection in Civil Life.

3:00 P.M.—Lieut. Col. Leigh C. Fairbanks, D.C., U. S. Army.
Subject: Medical and Dental Liaison in the Military Forces.

3:30 P.M.—Visits to hospitals and laboratories.

8:00 P.M.—Smoker.

FRIDAY, OCT. 30:

9:30 A.M.—Lieut. Col. Stanley W. Clark, Dent. Res., Chairman, Dental Section, Association of Military Surgeons.
Subject: Recent Research in Local Anesthesia with Reference to the Development of the Alkaline Solution.

10:00 A.M.—Lieut. Col. Walter C. Darling, Med. Res., U. S. Army.
Subject: Suggested Plan for Modernization of Transport Service of a Medical Regiment. (Lantern slides.)

10:30 A.M.—Lieut Comdr. W. W. Hall, M.C., U. S. Navy.
Subject: Active Immunization Against Tetanus with Tetanus Toxoid.

11:00 A.M.—Lieut. Col. Orville E. McKim, Vet. Res., U. S. Army.
Subject: The Service of the Veterinary Corps in the Motorized Combat Armies.

11:30 A.M.—Lieut. Col. Albert G. Hulett, Med. Res., U. S. Army.
Subject: Chapters and their Relation to the Association.

1:30 P.M.—Major F. C. Kidner, Med. Res., U. S. Army.
Subject: What England and Canada are doing for the Disabled War Veterans.

2:00 P.M.—Major Irwin B. March, M.C., U. S. Army.
Subject: Aviation Medicine.

2:30 P.M.—U. S. Public Health Service—Speaker and subject to be announced.

3:00 P.M.—Personally conducted trip to Greenfield Village.

SATURDAY, OCT. 31:

9:30 A.M.—Brig. Gen. George W. Crile, Med. Res., U. S. Army, Cleveland Clinic.
Subject: Eighteen Years After.

11:00 A.M.—Business meeting.

1:30 P.M.—Visit to Selfridge Field. Transportation leaving hotel entrance at 1:30 P. M. Sharp.

8:30 P.M.—Annual Banquet.

Local Committees on Arrangements

General Chairman—Colonel Burt R. Shurly, M.C. Res.
Secretary and Treasurer—Surgeon Walter J. Cree U.S.P.H.S., Res.

Entertainment Committee

Chairman—Col. John D. Buck, M.C., Mich. N.G.
Lieut. Col. Carl Hanna, M.C., Mich. N.G.
Surgeon W. Y. Hollingsworth, U.S.P.H.S.
Major Irwin B. March, M.C., Army.
Major Harrison B. Stucky, M.C., Army.
Major T. K. Gruber, M.C., Res.
Major E. Carlton Fox, D.C., Res.
Captain E. O. Sage, Vets. Administn.
Lt. Comnd. J. E. Malcomson, M.C., Navy.

Membership Committee

Chairman—Maj. Bernard Friedlaender, M.C., Res.
Captain Harry S. Berman, M.C., Res.

Exhibits Committee
Commercial

Chairman—Lieut. Col. Bror H. Larsson, M.C., Res.
Captain Clarence D. Moll, M.C., Res.
Lieut. Comnd. Elwood A. Sharp, M.C., Navy Res.
Lieut. Howard K. Shrom, M.C., Res.

Scientific

Chairman—Lieut. Col. Wm. H. Gordon, M.C., Res.
Major Frank S. Matlack, M.C., Army.
Lieut. Comnd. Henry S. Brown, M.C., Navy Res.
Dr. Henry F. Vaughan, Health Commissioner.

Ways and Means Committee

Chairman—Brig. Genl. Fred T. Murphy, M.C., Res.

Program Committee

Chairman—Col. Grover T. Penberthy, M.C., Res.
Captain Charles E. Lemmon, M.C., Res.
Captain Edward D. Spalding, M.C., Res.

Auditing Committee

Chairman—Col. Louis J. Hirschman, M.C., Res.

Reception Committee

Chairman—Col. Angus McLean, M.C., Res.
Major Erskine Hume, M.C., Army.
Col. Roland H. Parmenter, M.C., Res.
Lieut. Col. Henry R. Carstens, M.C., Res.
Major Andrew P. Biddle, M.C., Res.
Major Earl Barkley, M.C., Res.
Major John C. Dodda, M.C., Res.
Major Bruce C. Lockwood, M.C., Res.
Major Robert G. Owen, M.C., Res.
Captain H. P. Cushman, M.C., Res.

Publication Committee

Chairman—Major Orlando W. Pickard
Dr. J. H. Dempster, STATE MED. JOURNAL
Dr. David I. Sugar, *Medical News*
Mr. Malcolm W. Bingay, *Detroit Free Press*
Mr. A. M. Smith, *Detroit News*
Mr. John C. Manning *Detroit Times*
Major Cyril K. Valade

Lay Committee

Chairman—Major O. Z. Ide
Brig. Genl. H. A. Pickert
Col. Oscar W. Smith

Major Charles T. Sawyer
Comnd. R. Thornton Brodhead
Hon. Truman Newberry
Capt. Frederick F. Stearns
Major Edward F. Hinkle
Mr. William S. Knudsen

Ladies Entertainment Committee

Chairman—Mrs. Burt R. Shurly
Mrs. R. Thornton Brodhead
Mrs. Walter J. Cree
Mrs. John D. Buck
Mrs. O. Z. Ide
Mrs. Angus McLean
Mrs. H. A. Pickert
Mrs. Howard K. Shrom

Scientific Exhibits

The scientific displays promise to be most interesting and instructive. They will include displays from the following:

Medical Corps U. S. Army
Medical Corps U. S. Navy
U.S.P. Health Service
U. S. Veterans Administration
University of Michigan
Detroit Board of Health
University Hospitals of Cleveland, Ohio
Tissue Immunity—Dr. Ruben L. Kahn
Contest in Field Laboratory
Receiving hospital of Detroit Bronchiogenic Carcinoma
Drs. E. A. Sharp and William H. Gordon
Hemologic and Anemia Material
Agranulocytosis
Hypoglycemia in the Infant
Treatment of burns—Dr. Grover Penberthy

THE DOCTOR'S LIBRARY

Acknowledgment of all books received will be made in this column and this will be deemed by us a full compensation to those sending them. A selection will be made for review, as expedient.

THE EYE AND ITS DISEASES. By 82 International authorities. Edited by Conrad Berens, M. D., Ophthalmic Surgeon, Pathologist and Director of Research, New York Eye and Ear Infirmary; Special Research, New York Eye and Ear Infirmary; Special Consulting Ophthalmologist, Woman's Hospital; Consulting Ophthalmologist, Veterans Administration Facility, New York; Lecturer in Ophthalmology, New York Eye and Ear Infirmary; Member of American Board of Ophthalmology; Member of the Society of Surgeons of Paris; Lieutenant-Colonel, M. R. C., U. S. Army. 1254 pages with 436 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1936. Cloth, $12.00 net.

This general textbook on Ophthalmology answers a definite need. It is readable, concise, and up to date, and covers every aspect of practical Ophthalmology. The chapters on Aniseikonia and Retinal Detachment contain material not to be found in other standard texts. Eighty-two of the best known authors in Ophthalmology have contributed to this volume. The majority of the contributors, authorities on general Ophthalmology, have been chosen to submit material on subjects with which they are particularly familiar and on which they have written. They have stated facts that are of practical use to every ophthalmologist and have done so leaving out needless and time consuming detail elsewhere to be found when needed.

Whether viewed from the standpoint of the beginner or the experienced ophthalmologist we can see in this book a volume that will be reached for on the desk or shelf with the confidence that characterizes one's attitude toward Fuchs and DeSchweinitz in Ophthalmology or Osler in medicine. We congratulate Dr. Berens and his collaborators.

A TEXTBOOK OF HISTOLOGY. By Joseph Krafka, Jr., Ph.D., M.D., Professor of Microscopic Anatomy, University of Georgia School of Medicine, Augusta. 246 pages, 95 figures. Baltimore: Williams & Wilkins Co., 1936. $2.50.

This is a concise treatment of microscopic anatomy characterized particularly by an attempt to correlate information on histology, function and points of practical importance. It consists of thirty-six short chapters each devoted to characteristic organs or tissues. Though unorthodox in treatment, the work is quite well done. It is a question, however, whether certain chapters might not be beyond the premedical or general biological student for whom the book is written. As an auxiliary text for the medical student or as a brief review of microscopic anatomy for the physician, the book should prove stimulating and of value.

THE STUDY OF ANATOMY. WRITTEN FOR THE MEDICAL STUDENT. By S. E. Whitnall, M.A., M.D., B.Ch. (Oxon.), M.R.C.S., L.R.C.P., F.R.S. (Canada), Professor of Anatomy at the University of Bristol, 1935; Professor of Anatomy in McGill University, 1919; University Demonstrator at Oxford, 1908. 113 pages. Third edition revised and enlarged. Baltimore: Wm. Wood & Co., 1936. $1.75.

Gross anatomy as the first unit of the medical curriculum provides a pacemaker for subsequent courses. From the beginning of his dissection, the student is enmeshed in countless details of arteries, nerves, lymphatics, muscles and organ systems, and as he progresses, the details accumulate. The synthesis of an adequate concept of body structure is a real task. The course is without precedent in the student's experience. Previous courses in literary college are organized so that students can read their texts from chapter to chapter and acquire a synthesized view; anatomy is conditioned by the requirements of studying structures in the order that they are most conveniently dissected.

This little book written for the premedical or first year student is designed to help him over the difficult transition period. He is provided with a helpful viewpoint and taught how to distinguish the significant from the unimportant, how to work and how to study. Textbooks, examinations and instructors are discussed. All in all, the student will find here information which will make it easier for him to adapt himself not only to anatomy, but to subsequent medical courses.

ENDOCRINOLOGY IN MODERN PRACTICE. By William Wolf, M.D., M.S., Ph.D. 1018 pages, with 252 illustrations. Philadelphia and London: W. B. Saunders Company, 1936. Cloth, $10.00 net.

This rather extensive work provides an account of the development, anatomy, histology, function and chemistry of each of the conventional glands of internal secretion and of the mammary gland. As each organ is considered, the diseases affecting it are dealt with from the standpoint of etiology, pathology, symptoms, diagnosis, prognosis and treatment. An interesting chapter is devoted to hormones produced in the liver, stomach, duodenum and other organs not ordinarily classed as endocrine. The author treats of the endocrine and medical aspects of obesity, menstrual disorders, the menopause, pregnancy and sterility. An extensive section is concerned with the endocrine relationships in "non-endocrine" diseases, such as surgical and mental diseases and diseases of children. The last quarter of the book is concerned with endocrine diagnosis and the use and action of endocrine preparations.